THE IRON AGE

New York, Thursday, April 26, 1906.

The Power & Mining Machinery Company's Slag Car.

Because of the rough handling to which a slag car is regularly subjected, a large factor of safety was used in the design of all the parts of the machine illustrated. Special pains were also taken to make it simple to operate on account of the class of labor usually employed for the purpose. The car is a new type recently designed by the Power & Mining Machinery Company, Cudahy, Wis. The two views are of a 10-ton slag car, of which 15 were recently built for the new Garfield plant of the American Smelting & Refining Company near Salt Lake City. Each car weighs 27,000 pounds empty, or 47,000 pounds when filled with slag, and is 15 feet long over all and 6½ feet high. Fig. 1 shows the car in filling and transporting position, and Fig. 2 the position assumed by the parts when dumping the ladle.

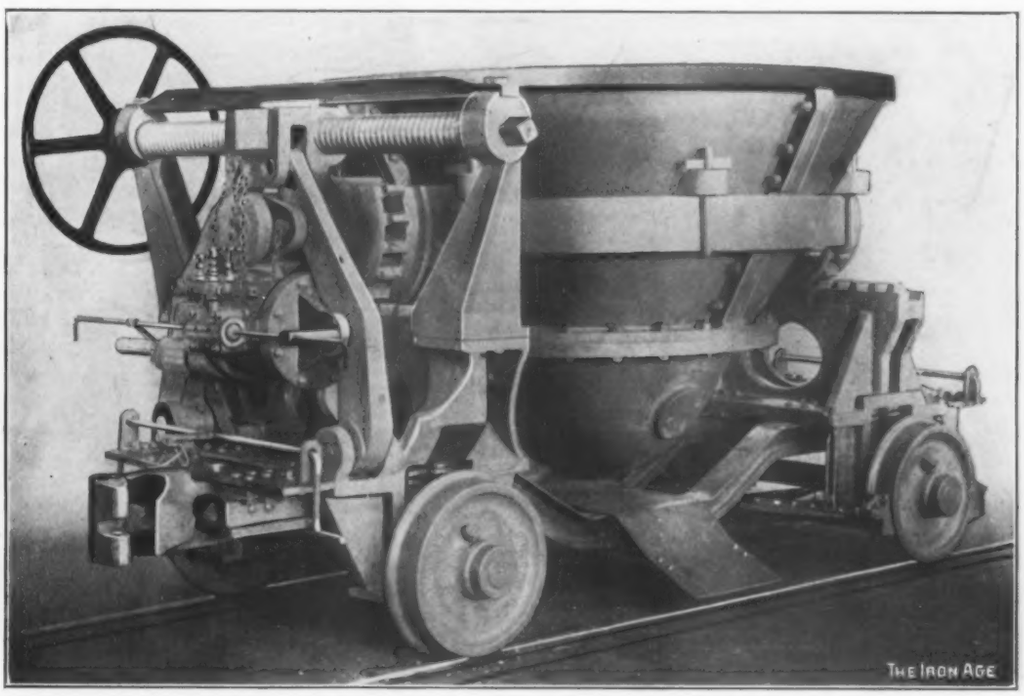


Fig. 1.—A Slag Car Recently Designed by the Power & Mining Machinery Company, Cudahy, Wis.

The bowl is made in five sections, the bottom being made in one piece with four quarters forming the top. This allows of any burnt out or broken parts being easily replaced. These sections are bolted together and tied to a steel supporting ring by key bolts. The supporting ring is riveted to pinion toothed trunnions which roll on a racked track. Both the pinion and the rack have openings between the teeth to prevent their being clogged by any slag which might be spilled into them. The trunnions are rolled by a sleeve which is operated through a lever by a 12-inch air cylinder. This cylinder is designed to operate on 60 pounds air pressure and to tilt and hold the pot in any position. The air valve for this cylinder is a simple four-way cock conveniently operated from either side of the car by sliding handle rods.

All the levers and other operating parts are made of steel to reduce the weight of the machine without sacrificing strength. A hand wheel and screw is also provided so that the bowl can be dumped by hand, if an air supply is not available. Pin connections are used to release or attach the parts to the hand screw or the air cylinder. When these are arranged as illustrated, the bowl can dump only to the one side, but the dumping may be reversed by connecting the trunnion sleeve to the other operating lever. For hand dumping to the opposite side the hand wheel would be placed on the other squared end of the screw. When tilted to the extreme position the side of the bowl makes an angle of 50 degrees with the vertical, so as to readily allow the slag skull to slide out. The bowl in dumping is carried to the side of the car by the rolling of the trunnions, so as to dump outside of the rails. An apron in the middle of the truck prevents any drippings from falling on the track.

The entire body of the car is carried on eight powerful springs placed under the front and rear supporting frames and resting on the main bearing boxes. These bearing boxes are fitted with phosphor bronze bearings which are kept lubricated by removable oil waste boxes. The two supporting frames are tied together by two 100-pound rail securely riveted to them and extended to carry the Tower automatic couplers. These are provided with the usual side crank handles for releasing the coupler. One of each pair of wheels is provided with a bronze bushing, so that it can revolve on the axle when going around a curve.

Slag cars of this design are made in various sizes up to 15 tons capacity, and with or without the air cylinder.

The Schwartz Steel Process.

A new process of steel manufacture has been evolved by E. H. Schwartz, Chicago, inventor of the Schwartz melting and refining furnace manufactured by the Hawley-Down Draft Furnace Company of that city. In the refining process a Schwartz furnace is used with oil as the fuel. Steel is successfully made by this process in a 90-inch furnace of this type having a capacity of 6000 pounds at the foundry of the Otis Elevator Company, Chicago. For melting a portion of the metal to be refined a cupola is used, although a part of the heat is raised to the melting point in the furnace. The cupola is charged with one ton of low phosphorus pig iron containing about 1 per cent. of silicon and 2300 pounds of return melt steel scrap. While this charge is being raised to the proper temperature 800 pounds of return melt steel scrap and 2400 pounds of low phosphorus pig iron are

being heated to about the melting point in the furnace. The cupola charge when melted is poured into the Schwartz furnace, and on account of the large amount of steel scrap, it is claimed that the entire carbon content is below 2 per cent., and is further reduced to 0.25 per cent. in approximately 2½ hours by the oxidizing flame in the furnace. The metal is superheated by burning the carbonic oxide liberated during the refining process, and the high heat necessary to burn this gas is obtained from two converging blow pipe tuyeres located near the top of the furnace. The flame enters the furnace in two converging jets, passes down on the metal bath, makes two revolving turns and then passes out the spout. The inventor states that a temperature of over 4000 degrees F. is obtained in the furnace, and that a perfect oxidizing flame can be controlled by the ½-inch needle point valve located at the side of the furnace.

After the heat has been applied to the entire furnace charge for 1½ hours tests are made, and 15 minutes before pouring ferrosilicon and ferromanganese are added. Aluminum in quantities of 2½ pounds per ton of steel is placed in the ladle before the heat is poured. While the pig iron and steel scrap are being melted in the cupola, sulphur and phosphorus are absorbed from the coke, but the total furnace charge is lowered as the initial charge in this vessel shows no increase of either sulphur or phosphorus owing to the use of fuel oil. Extensive tests have been made that show no increase of either sulphur or phosphorus from the oil. The pig iron and scrap are gradually charged into the cupola, and as a blast pressure of only 9 ounces is maintained, oxidation is reduced to a minimum. Approximately four tons of steel can be made by this process in 4 hours, and castings ranging from 2 ounces to 2500 pounds can be poured. Eighty gallons of oil for a ton of steel are consumed and the cupola melt ratio is about 1 to 6. By the use of two Schwartz furnaces a cupola will not be required, and the inventor claims that a high grade of acid steel can be made. Steel is also made by this process in a plant installed at West Drayton, England.

It is further claimed that malleable iron can be made by the use of this furnace and a cupola. In this case 60 per cent. of the charge is to consist of return melt scrap with a mixture of steel scrap, as desired, and this is melted in a cupola with a low blast pressure and sufficient coke. The remaining 40 per cent. of the charge is melted in the furnace and consists of pig iron, either malleable Bessemer or charcoal. The cupola charge is poured into the furnace when the latter has reached the melting point, and the steel charge is melted for about one-half hour. If necessary, ferrosilicon can be added to the metal to secure the proper silicon content. It is claimed for this process that a greater amount of scrap can be used than is used either by air furnaces or in open hearth practice.

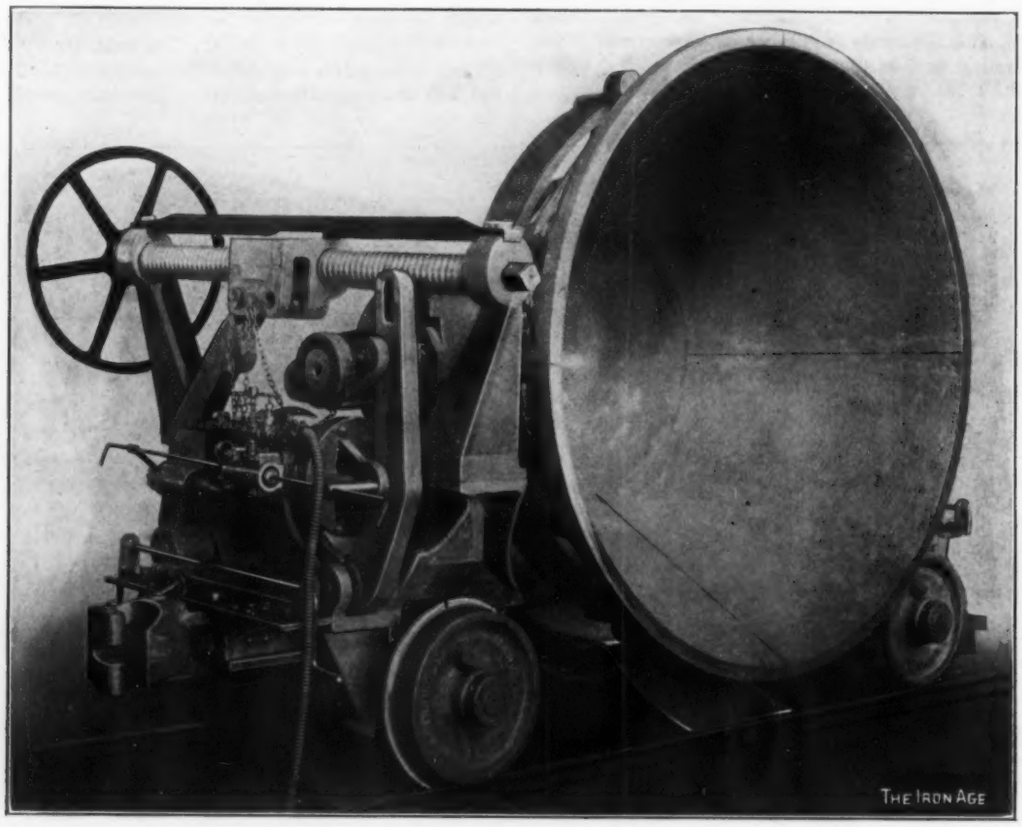


Fig. 2.—The Power & Mining Machinery Company's Slag Car in Dumping Position.

The last issue of the *Progress Reporter*, which is published from time to time by the Niles-Bement-Pond Company, New York City, is devoted to the machine shops of the Bethlehem Steel Company at South Bethlehem, Pa. The treatment is largely pictorial, there being about thirty full page engravings. General views are shown in the main machine shop, where there are immense gun lathes and other heavy tools; in shop No. 3, devoted to the machining of armor plates, and in No. 4, which is a small gun shop. Other illustrations show near views of tools notable for their size, power or producing capacity. Among such may be mentioned gun lathes of from 60 to 85 inch swing, large engine lathes, sloting machines, vertical milling machines, horizontal boring and drilling machines, a 72-inch crank boring machine, 72 and 84 inch planers, 14-20 foot boring mill, and numerous smaller boring mills, engine lathes, gun barrel drilling machines, slotting machines, rifling machines, a vertical and horizontal planer of the post type used in the armor plate shop, &c. All of the tools are of a special nature, and the fact that they are shown in operation makes them especially interesting. A study of the pictures impresses one with the extraordinary work which is being turned out in this plant and the remarkable tools that make it possible.

March exports of all kinds of merchandise totaled $145,522,342, being the largest for March ever reached. The imports were valued at $133,625,066, which is the largest total for any month in the country's history.

The New Peerless Hoist.

The new type spur geared chain hand hoist, illustrated herewith, embodies features which have heretofore not been developed. Safety combined with durability, speed and power have been the main points sought, and the manufacturers, Edwin Harrington Son & Co., Incorporated, Seventeenth and Callowhill streets, Philadelphia, Pa., believe that in the new Peerless they have the most efficient hoist of its type yet produced. Fig. 1 shows a general view of the hoist suspended from a hand traveling trolley. The hoisting mechanism, as shown in Fig. 2, consists of a train of balanced steel spur gears. These, to insure perfect bearing on the surface of the teeth, are cut from drop forged blanks to reduce friction and wear and to give free and smooth action.

The sustaining mechanism consists of two friction disks, between which there is a leather washer. The hand wheel is screwed on the threaded hub of one disk, and in the act of rotating in hoisting, clamps both disks tightly together, in which position the two parts rotate as one without slipping. The other disk has teeth cut in its periphery, engaging a pinion which is carried on a swinging arm, the teeth of which are of such form that in hoisting they revolve noiselessly in the one direction. When the raising motion ceases the teeth, unable to revolve in the reverse direction, lock in such a manner as to throw the pinion backward until its teeth engage a steel dog, forming a positive lock and automatically binding the frictions and holding the load securely at any desired point. When the operator desires to lower the load it is only necessary to rotate the hand wheel in a reverse direction, which releases the friction and permits the load to be lowered smoothly and rapidly. The load may be held at any desired hight by discontinuing the reverse rotation of the hand wheel, when the disks automatically tighten and the load is securely held.

A single load chain is used with this hoist, making it more compact as well as reducing the weight. Any danger of slipping of the load chain is eliminated by the chain guide and stripper. The new flaring hand chain guard, as shown in Fig. 2, permits the operation of the hoist at one side without having the chain drag the guard.

All working parts of the hoist are thoroughly protected from dust and dirt by tight cases, and all parts on which there is any strain are designed with an ample factor of safety. These blocks are built in sizes ranging from 1000 to 40,000 pounds.

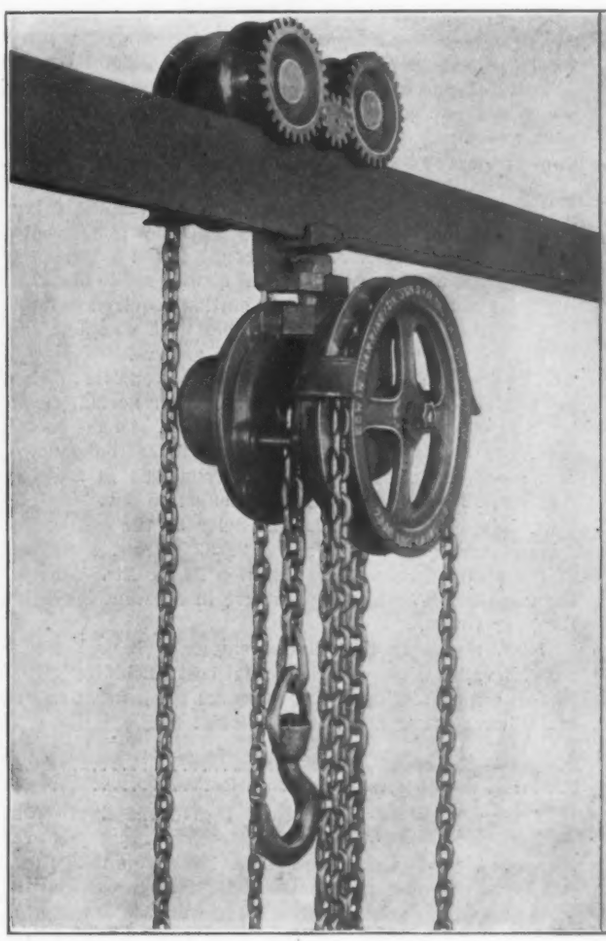


Fig. 1.—The Peerless Hand Hoist, Made by Edwin Harrington, Son & Co., Incorporated, Philadelphia.

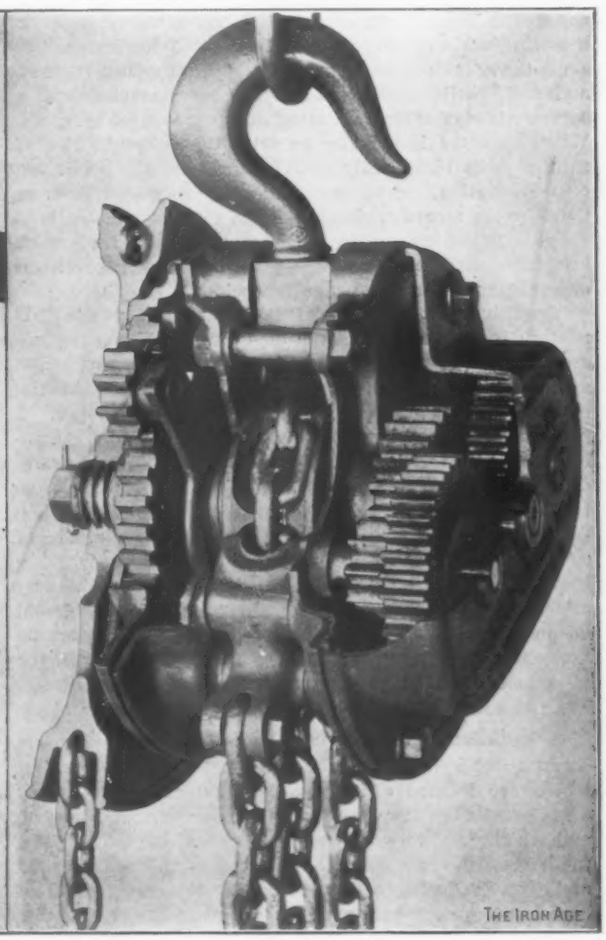


Fig. 2.—A Broken Out Section of the Peerless Hand Hoist, Showing the Mechanism.

The Atlanta Steel Hoop Company's Improvements.

The Atlanta Steel Hoop Company, Atlanta, Ga., will have its new steel plant in operation in about 30 days. This plant is being built by the Wellman-Seaver-Morgan Company, Cleveland, Ohio, and consists of two 35-ton open hearth furnaces and a reversing blooming mill designed to roll ingots to 1¾-inch square billets. A semi-continuous Morgan rod mill, to roll wire rods and other products, and a continuous heating furnace, with gas producers, &c., have been built by the Morgan Construction Company, Worcester, Mass. A complete wire drawing plant and a nail factory, making all sizes of wire nails, have also been added. The wire drawing machinery was built by the Turner, Vaughn & Taylor Company, Cuyahoga Falls, Ohio, and the nail machines were furnished by the National Machinery Company, Tiffin, Ohio. The rod mill, wire drawing plant and the nail factory are now running. The Atlanta Steel Hoop Company started in business in 1901 with an 8-inch train of rolls and has now grown to the above proportions. Its products have hitherto been hoops, cotton ties, bars, bands and light steel rails. S. T. Weyman is president and G. W. Connors secretary and treasurer.

Gas Power Economics.—I.*

With Special Reference to the Iron and Steel Industry.

BY F. E. JUNGE, NEW YORK.

The following presentation is founded on the experience and facts gained in the course of several years of actual practice devoted to the careful study of the gas power problem in Europe. It is advanced at a time when the more serious and responsible leaders of the iron and steel industry in this country seem at last to have been aroused to the possibilities offered by the employment of more economical methods of production, and is submitted as a proof of the commercial superiority of blast furnace gas power plants over steam plants, whether reciprocating piston engines or steam turbines be used.

Among the various realms of application which lend themselves to the efficient utilization of waste gases in these industries, those of the gas engine drive for electric generators, both direct current and alternating current, and for blowing engines, have now been developed to a perfect state of standardization and commercial economy. Whether or not it is better to drive the various forms of rolling mills electrically and from a gas engine driven central station, or by scattered gas engine drives, or whether the steam engine is yet the most economical and reliable prime mover to install for this kind of work are questions which cannot be regarded by the critical observer as having been finally decided.

Speaking, as I must, of foreign achievements in this modern branch of gas power engineering, I have on another occasion† set forth such principles of construction and scientific methods as are to be observed in the rational design of gas power prime movers proper. I shall, therefore, confine myself in this article to the elaboration of a few approved and practical methods and data which during my last year's visit to Europe have come under my personal observation.

In comparing industrial developments we must, of course, remember that inequalities in conditions, whether they be geographical, economical or governmental, must always largely affect the point of view and the judgment on questions that are of common interest in engineering matters, especially when the comparison concerns the divergent practice of countries like the United States and Germany.

Electric Centralization in Germany.

In a small country with limited natural resources, but which are located closer together and are more evenly distributed than they are in the greater part of America, and which have to supply a concentrated industrial area, industries will naturally locate within the coal mining and iron producing districts, and by the employment of high tension electricity will easily extend the commercial radius of power distribution over the whole area of the country. This most natural method and which is prescribed by the geographical conditions prevailing on the Continent—to make the coke and iron producing fields become power producing fields as well—is, of course, also the most economical, especially since electric centralization and electric drive all over the works, including auxiliaries, have been adopted in all the latest and largest European plants. An illustration of the extent to which electric centralization has been carried in Germany may be drawn from the practice obtaining in isolated coal mines, which often possess no prime movers for driving the various pumps, hoists, fans and other machinery. These mines have a transformer substation, equipped with motor generators and fly wheel sets, serving to equalize the load fluctuations, while high tension electric current is obtained from a central station, sometimes located in a city many miles from the mines. For instance, 50-cycle current of 10,000 volts is transmitted over a distance of 9 km. from the city of Essen to the Matthias Stinne Coal Mines, where 2000 horse-power is used for driving the various machines. In another case a coal mine which supplies good coal for coking purposes has a coke oven plant attached to it and utilizes the waste gases thereof in a gas engine driven central station, while the surplus power is distributed by electric transmission to the substations at neighboring mines.

This possibility of utilizing the energy in waste gases by distributing and selling it for light and other purposes in the neighboring industrial districts forces the German engineer in the determination of the commercial economy co-efficient for a heat power plant, to place more value on the factor of heat cost than can be imparted to it under the conditions prevailing in this country. How seriously the difference in the valuation of this factor affects the prime mover problem in central stations can best be seen by comparing the estimated calculation made by Iffland to determine the respective merits of various engine drives for a combined coke, iron and steel plant, where the coal mines are located so close together as to fall within the commercial distribution circle of the electric central station and are operated from it. The normal power required by all the engines is 42,000 horse-power; therefore the maximum simultaneous capacity which the plant must be able to carry permanently is 21,000 horse-power, which is produced from the waste blast furnace and coke oven gases.

Comparison of Gas and Steam Driven Central Stations.

We shall consider only two cases: First, a gas engine driven central station; second, a steam turbine driven central station. All the auxiliary machines are operated from the central station. On account of the difference in consumption of the reversible and nonreversible machines the total capacity of the central station required is found to be 25,000 kw., it being advisable with complete centralization to provide for an ample reserve.

The power equipment in the first case consists of eight gas engines, each having 6000 horse-power normal capacity, and 4000 effective kw. (cos. $\phi = 0.8$). In the second case, five steam turbines each have 10,000 horse-power normal capacity and are directly connected to alternating current generators of 6800 effective kw. capacity (cos. $\phi = 0.8$). The normal capacity of the gas engine driven central station is therefore 32,000 kw. total, and of the steam turbine driven station 34,000 kw. Most of the machines used in the plant are in constant operation the year round.

Now, assuming that the waste gases have no commercial value whatever, the actual cost, including initial capital outlay and operating expenses for generating one brake horse-power hour, is as follows:

	Cents.
For gas engine driven central station	0.44
For steam turbine driven central station	0.42

For purposes of comparison, I give the figure that would be obtained by driving with steam engines all over the works. One brake horse-power hour would then cost 0.75 cents. In this case the steam turbine would be the most economical prime mover. However, the assumption that the blast furnace and coke oven gases are given for nothing is erroneous. The gases must first be cleaned, as this increases their heating capacity and makes them applicable for use in gas engines; but this process requires an expenditure of one cent per 30,000 cubic feet; moreover, they actually have a value as fuel for steam raising. In the plant under consideration, we shall therefore compare the power value of the waste gases when used in gas engines to what obtains when burned under boilers, and so must appraise the gas at a rate corresponding to the reduction of the coal bill. If power can be distributed abroad the appraising of the gas depends on the disposal of the surplus power and varies with the locality. Estimating coal at $2.50 per ton and assuming that 7 kg. of steam are raised from 1 kg. of coal, then the value of the blast furnace gases which are to be used in gas engines is $150,000. The value of the blast furnace and coke oven gases available for raising steam is $325,000. With this valuation, the former cost per brake horse-power per hour is modified as follows:

	Cents.
Gas engine driven central station	0.54
Steam turbine driven central station	0.66

With steam engine drive the cost would be 98 cents. It will be seen that the correct valuation of the fuel up-

* Enlarged from an address read before the American Institute of Electrical Engineers, New York.

† *Power*, New York.

sets the former results entirely in favor of the gas engine driven central station. Basing the results on the cost of production per ton of marketable goods, of which this plant sells 300,000 tons per year, we arrive at the following:

Gas engine driven central station, $2 without and $2.48 with appraising the gas.
Steam turbine driven central station, $1.93 and $3.02, respectively.
With steam engine drive the cost would be $3.35 and $4.42, respectively.

It is seen that the gain effected by the selection of gas engines instead of steam turbines for the central station amounts to 50 cents per ton of annual capacity. The figures are of special significance, as they show how much the whole prime mover question hinges on the valuation of the factor of heat cost. The conditions change, of course, if a plant possesses only capacity for iron and steel smelting and has rolling mills but no coal mines attached to it; and they are again different for a steel plant with rolling mills, but without coal mines, blast furnaces and coke ovens. It is only in the last named case that the pure gas engine drive—gas engine central station and scattered gas engine auxiliaries—is the most economical method.

Data and Facts from Actual Practice.

However, since theoretical assumptions like those in the foregoing calculations are always regarded by skeptics as uncertain, we may as well base our considerations on such data and facts as were obtained on the Continent in the course of several years of actual practice. We shall, in the following comparison between the respective merits of gas or steam drive for various forms and localities of application, omit the consideration of some items which, on account of their dependence upon local conditions, are apt to make the numerical results rather problematical. By this, I mean especially the items of first cost, interest, amortization, &c., which, according to the latest data obtained in Germany, are found to bear a ratio of blast furnace gas engine plant to steam boiler and engine plant of 1 to 1.3, while in this country the items of first cost can hardly be regarded as being even on a parity. Some power plant engineers hold that the excess cost of a gas plant over a steam plant runs from 7.4 to 14 per cent., so that, if the annual saving in operation were capitalized at 5 per cent., it would take less than two years to cover the surplus capital invested. Others assume that the capital outlay for a first-class steam and for an internal combustion plant are equal.

Another feature of uncertainty is introduced into the estimate by the varying practice of rating gas engines, a matter which indeed needs urgent standardization. If there were any disappointments experienced with earlier continental gas power plants, they were, aside from negligence in gas cleaning apparatus and methods, almost entirely due to an overrating of the normal capacity of the gas engine, which, owing to the impossibility of carrying an overload over what is determined by its cylinder suction capacity, cannot be expected to compete with a steam engine of the same nominal output.

The cost of water which is consumed in the boilers of steam power plants and for washing and cleaning purposes in gas power plants is another uncertain item, widely varying with local conditions. If it is omitted in the following comparison, this operates in favor of the steam plant, which consumes by far more water. The cost for purifying and back cooling, too, is much higher than in a gas plant. We shall also confine ourselves to figuring the comparative cost of operation of the central station proper without including in our calculation auxiliary machines. The calculation will therefore include: 1. Expenditures for maintenance. 2. Attendance and upkeep. 3. Fuel expenses.

As was mentioned before, the method of appraising the blast furnace gas consists generally in determining the amount of coal which is saved by burning the waste gases in gas engines instead of under steam boilers. But this rather superficial method of valuation gives the gas price regardless of the cost of cleaning and is altogether incorrect. A better practice developed on the Continent is based on the reasoning that the gas in the gas engine cylinder is utilized just as directly as the steam is in the cylinder of a steam engine. We shall, therefore, appraise the gas according to its heating value, but compare with the amount of steam generated and not with the corresponding quantity of coal used. It may be said, however, that no standard method of valuation can be accepted, but that each individual case must be treated separately and in accordance with the local conditions.

Results in the Minette District of Germany.

The following data, recorded by Ehrhardt, were obtained in the Minette district of Germany, where one metric ton of coal (0.9842 ton English), having a heating value of 6500 calories (11,700 British thermal units per pound), can be bought at from $2.62 to $3.57, according to the location. Taking an average steam pressure of 8 atmospheres (113.84 pounds per square inch), which has a total heat value of 660 calories (2619 British thermal units) and feed water entering at 20 degrees C., there are necessary for generating 1 kg. (2.2 pounds) of such steam 640 calories (2539 British thermal units).

A medium boiler plant with 66 per cent. efficiency will generate under these conditions from 1000 km. of coal:

$$0.66\,\frac{1{,}000 \times 6{,}500}{640} = 6{,}700 \text{ kg. of steam.}$$

1,000-kg. of steam, therefore, cost $\frac{\$2.62 \text{ to } \$3.57}{6.7}$ = from 39 to 53 cents, depending upon the price of the boiler coal

In addition there are wages for firemen and general upkeep of boilers, running the cost per 1000 kg. of steam up to from 56 to 71 cents. Similarly we find:

1,000 cubic meters of gas = 1,000 × 900 cal. = $0.66\,\frac{1{,}000 \times 900}{640}$ kg. steam, = 928 kg. steam, at a value of $\frac{928}{1{,}000} \times (0.39 \text{ to } 0.53)$ = 52 to 66 cents.

Or, in English units, 1,000 cubic feet of gas cost 1.47 to 1.89 cents, and 1,000 pounds of steam cost 25.5 to 32.3 cents, the price varying, of course, with the cost of coal and the location of the plant.

To determine the factor of gas consumption and total gas cost, it can be taken that large gas engines have an average mechanical efficiency of 82 per cent., which is the mean of the two extreme results, 84 and 80 per cent. having been obtained in reliable tests, although in the latest types 92 per cent. has been recorded. Hence, 1 effective horse-power = 1.22 indicated horse-power. At full load an engine of this kind will consume 2.8 cubic meters (98.8 cubic feet) of blast furnace gas, having a calorific value of 900 calories (100 British thermal units per cubic foot). Considering that the work required for running the engine at no load is approximately invariable, but that with decreasing load the gas consumption per indicated horse-power is somewhat increased, the following tabulation for the fuel consumption is obtained:

At 100 per cent. load, 2.8 cubic meters (98.8 cubic feet) gas per 1 effective horse-power hour.
At 90 per cent. load, 3.0 cubic meters (105.9 cubic feet) gas per 1 effective horse-power hour.
At 80 per cent. load, 3.2 cubic meters (112.9 cubic feet) gas per 1 effective horse-power hour.
At 66 per cent. load, 3.45 cubic meters (121.8 cubic feet) gas per 1 effective horse-power hour.
At 50 per cent. load, 3.7 cubic meters (130.6 cubic feet) gas per 1 effective horse-power hour.

These figures do not give the best results which can be obtained with large modern gas engines, or under specially prepared test conditions, but they may be relied upon as giving what has been obtained during several years' continuous practice. The losses due to radiation and condensation in the pipe lines have been accounted for by assuming the total steam consumption of engines running all day and night to exceed the net consumption by from 10 to 12 per cent., and with engines running only in the day time by from 15 to 16 per cent. The gas pipes do not, of course, show up any loss of the kind.

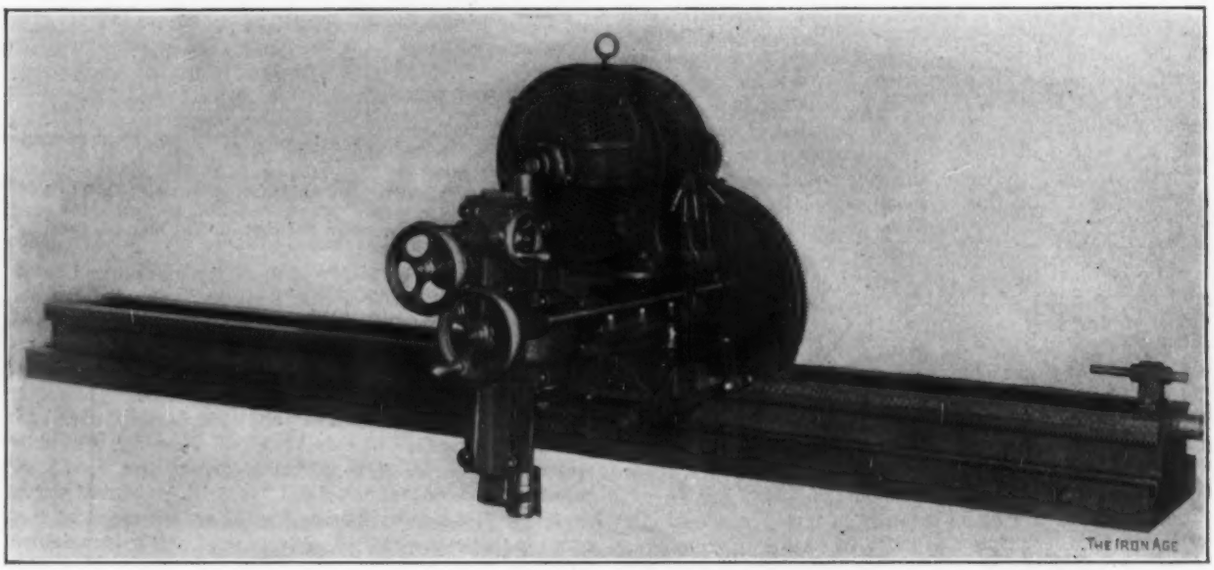
(To be continued.)

The last week in March, in which 1026 patents were issued, including trademarks, labels, prints and designs, was the greatest in the history of the Patent Office at Washington. The trademarks for the week numbered 377. The average issue of patents, trademarks, &c., is 700 to 800 a week, and the activity in the Patent Office is found to follow very closely the prosperity of the country.

A New Underwood Portable Milling Machine.

The new special portable milling machine illustrated was the outgrowth of a temporary emergency rig to do work on a large machine in place, which has been elaborated and made one of the large line of special tools built by H. B. Underwood & Co., 1025 Hamilton street, Philadelphia, Pa. Being motor driven, it is self contained and may be taken to the work. It is particularly useful for work on large machines which have been assembled and on which the work could not be performed in the ordinary way without taking them apart. The tool is designed for straight line work, with a number of surfaces in line but on different planes.

The carriage has a travel of 8 feet and has automatic feed. The cross slide has a hand feed and a travel of 12 inches, while the vertical spindle has an up and down travel of 10 inches. A taper hole in the spindle is adapted to receive taper shank mills. The carriage carrying the head and motor is moved along the bed much as a lathe carriage is moved on its bed, by a crank connecting with a pinion engaging a rack. The carriage may be clamped to the bed at any point by a hand wrench. The up and down movement of the head is effected by a small hand wheel at the top, which connects with a worm engaging a worm wheel on the same shaft with a gear meshing a rack on the slide. For more rapid movements the worm is disengaged from the worm wheel and a hand wheel on the shaft with the worm wheel is used directly. A horizontal movement at right angles to the bed is effected by the lowest hand wheel, which operates a long screw, supported at both ends in the casting supporting the motor and the head slide, and working in a nut on the carriage slide.



A Special Portable Milling Machine Built by H. B. Underwood & Co., Philadelphia, Pa.

The bed of the machine is mounted on a subbase, either for performing work in a vertical position, as shown in the illustration, or in a horizontal position, accurate adjustment being allowed by means of set screws operating against taper space pieces securely holding the two beds as solid as in one piece. This subbase has long slots and projections by means of which the machine may be secured to the work by clamps or bolts.

The weight of the machine and subbase complete is 2500 pounds, and while that shown in the cut is equipped with a two horse-power Westinghouse motor, a one horse-power motor is sufficient to drive the machine in general practice.

"Superior, the City of Opportunity," is the title of a pamphlet published by the Superior Consolidated Company, 30 Broad street, New York, dealing with the development and present status of Superior, Wis. Naturally the importance of Superior as a shipping port is given prominence, but there is also an array of facts showing that it has made an advance in manufacturing lines. The statistics of the commerce of Superior are not as recent as they might be, wheat shipments being given for 1900 and ore shipments for 1902. In the case of the latter it is to be noted that the shipments from Duluth are included with those of Superior under the general designation "Superior harbor."

The Duty on Old Fish Plates.

WASHINGTON, D. C., April 24, 1906.—The Secretary of the Treasury, acting upon a recommendation by the Attorney-General, has given notice of his acquiescence in the decision of the United States Circuit Court for the western district of New York, holding certain old railroad fish plates to be dutiable as scrap steel under paragraph 122 of the Tariff act rather than as fish plates under paragraph 120. The decision is of much importance to the trade and will be something of a surprise, as it had been confidently predicted that the Government would appeal the case. The issue is a broad one, involving the line of demarkation between scrap steel and articles which, though possibly available for further use, have nevertheless been discarded and sold for remanufacture. In deciding this case, Judge Hazel said among other things:

"Counsel for the Government, at the hearing and in his brief submitted, conceded that the single question to be determined by the Court is whether the condition of the fish plates as to shape and form has been so changed that it is impossible again to use them for the purpose for which they were manufactured. The testimony, which was not considered by the board, preponderatingly shows that again to use the articles as fish plates was wholly impracticable. Three disinterested witnesses experienced in the construction of railroads testified that the articles were in such a bad and worn condition that they were wholly useless for rail or track purposes, that they were fit only to be remanufactured and had no commercial value except as scrap steel. This uncontradicted showing is persuasive of the claim asserted by the importers, and the suggestion by the Government that the rails could still be used by contractors and others engaged in mining and logging for the purpose originally intended is beside the point. No such evidence is in the record, the exhibits being insufficient to establish the suggestion."

W. L. C.

Trade Unions May Not Coerce Their Own Members.

In line with the disposition of the courts as asserted in a number of decisions in recent years, to subject labor unions to the payment of damages for injury done to the business of an opposing employer, is a decision given on March 19, 1906, by the Supreme Court of Pennsylvania. The original case was brought by S. G. Purvis & Co. against Local 500, United Brotherhood of Carpenters and Joiners of America, *et al.* Besides affirming the liability of a union for damages because of its unlawful acts the decision is of great interest in that it holds unlawful certain acts of unions which the latter have engaged in with impunity, and to an extent undermines the foundations of union power by denying the right of the union to compel its members to obey orders directed against the business of a noncompliant employer.

S. G. Purvis & Co. operate a sash, door and blind factory and planing mill and lumber yards at Butler, Pa. They refused to unionize their shops. Local 500 put the firm on the "unfair" list. The District Council of Pittsburgh, Allegheny and Vicinity of the United Brotherhood of Carpenters and Joiners followed this declaration by putting a boycott on the firm and its product. It also, by use of the union label, caused members of the union to reject material coming from the mills of the plaintiffs. Work was stopped on certain buildings, the men being called out because material was being secured from S. G. Purvis & Co. These things were done after agents of the union had told members of the firm that if they did not agree to operate a union shop the only alternative was to quit business, as the union intended to inflict injury upon them if they persisted in their determination to run an open shop.

The result of the trial in the Court of Common Pleas of Butler County, Pa., was the issuance of an injunction against the defendants and the assessment against them of damages to the amount of $1770 sustained by the plaintiffs because of the stopping of work, by order of the union, on contracts in which the firm's material was being used and because of the boycott ordered. The injunction was definitely directed against practices which the unions have in many cases carried on without let or hindrance, particularly ordering their members to take steps inflicting injury on the business of an employer. After enjoining the union from circulating notices of its boycott on the plaintiffs, and from requesting customers or prospective customers to have their work done by union mills, as well as interfering with the business of persons purchasing material from the plaintiffs, the court's order makes this special reference to orders given by the union to its members:

> Or from interfering and from combining, conspiring or attempting to interfere for said purpose with the business of the plaintiffs, by the enforcement under pain of penalties and forfeitures, of Rule 7 of the working rules adopted for the government of local unions under the jurisdiction of the Carpenters' District Council of Pittsburgh, Allegheny and Vicinity, United Brotherhood of Carpenters and Joiners of America, which provides that "No member shall be allowed to work any material coming from any nonunion mill, and shall comply with this rule when the local unions are so informed and instructed by the District Council," or by other like coercive rules, the natural and necessary effect of which would be to deter the members of said trades unions or others from working upon buildings or other constructions to which the plaintiffs were furnishing materials, or contractors, builders or owners of said buildings or other constructions, or others, from purchasing materials from the plaintiffs; or from interfering or from combining, conspiring or attempting to interfere with the business of the plaintiffs for the purpose of injuring them in their business by the enforcement of fines or forfeitures, suspension or expulsion from membership in any of the locals within the jurisdiction of the Carpenters' District Council of Pittsburgh, Allegheny and Vicinity, United Brotherhood of Carpenters and Joiners of America, for failure to observe Rule 7 of the working rules adopted for the government of local unions under the jurisdiction of said Carpenters' District Council of Pittsburgh, Allegheny and Vicinity, United Brotherhood of Carpenters and Joiners of America, or for failure to observe any of the rules adopted and in force in that union, or that may hereafter be adopted, which would be coercion of said members interfere with the business of the plaintiffs, or from otherwise restraining, coercing and intimidating any one or more of the members of said union for said purpose from working for any contractors, builders, owners or other persons because they are doing or desire to do business with the plaintiffs; or from interfering and from combining, conspiring or attempting to interfere with the business of the plaintiffs by the issue of union labels to any mill within the jurisdiction of the Carpenters' District Council of Pittsburgh, Allegheny and Vicinity, United Brotherhood of Carpenters and Joiners of America, such issue of labels being made for the purpose of interfering with the business of the plaintiffs. From the doing of any and all of which acts and things for the purpose of injuring plaintiffs in their business and thereby compelling them to unionize their mill or have such injury continued, the said defendants, each and every one of them, their officers, committees, agents, employees, servants, members, associates and all others that may act in concert with them, or by their direction, are hereby enjoined and restrained.

In every particular the Supreme Court decision of March 19 affirms the above finding of the Common Pleas Court and thus definitely puts bounds to the authority of a trade union over its own members. The Supreme Court says of the contention of the union that it sought only to persuade and not to coerce, that "their means of persuasion are the destruction of the property of those whom they would persuade. Coercion may be accomplished without threats or violence, and the attempt to so accomplish it was made in this case." The Supreme Court says that "the members of Local No. 500 who were found working material from their [plaintiffs'] mill were coerced by the compelling power of the union to quit work on pain of trial, fine or expulsion, with its attendant annoyance and possible ostracism in case of their refusal. . . . The principle upon which the cases, English and American, proceed is that every man has the right to employ his talents, industry and capital as he pleases, free from the dictation of others, and if two or more persons combine to coerce his choice in this behalf it is a criminal conspiracy."

The Iron and Steel Institute's Annual Meeting.

The arrangements for the annual meeting of the Iron and Steel Institute in May are set forth in a circular dated April 10, issued by Secretary Bennett H. Brough. It will be held May 10 and 11 at the Institution of Civil Engineers, Great George street, Westminster, London. The Bessemer gold medal for 1906 will be presented to Floris Osmond of Paris. The awards of the Andrew Carnegie gold medal and research scholarships for 1906 will be announced. The following is a list of papers that are expected to be submitted: "The Influence of Silicon, Phosphorus, Manganese and Aluminum on Chill in Cast Iron," by E. Adamson, West Hartlepool; "The Influence of Manganese on Iron," by Prof. J. O. Arnold, Sheffield; "The Relation Between Type of Fracture and Microstructure of Steel Test Pieces," by C. O. Bannister, London; "Compression of Steel Ingots in the Mold," by A. J. Capron, Sheffield; "The Manufacture of Rolled Solid Steel Car Wheels and Tires," by P. Eyermann, United States; "Brittleness in Thin Steel Sheets," by E. F. Law, London; "Chain Making Machinery," by E. Lelong, Couillet, Belgium; "The Use of Oxygen in Removing Blast Furnace Obstructions," by C. de Schwarz, Liége, Belgium; "Volume and Temperature Changes Occurring During the Cooling of Cast Iron," by Prof. Thomas Turner, Birmingham; "The Influence of Copper in Steel," by F. H. Wigham, Wakefield.

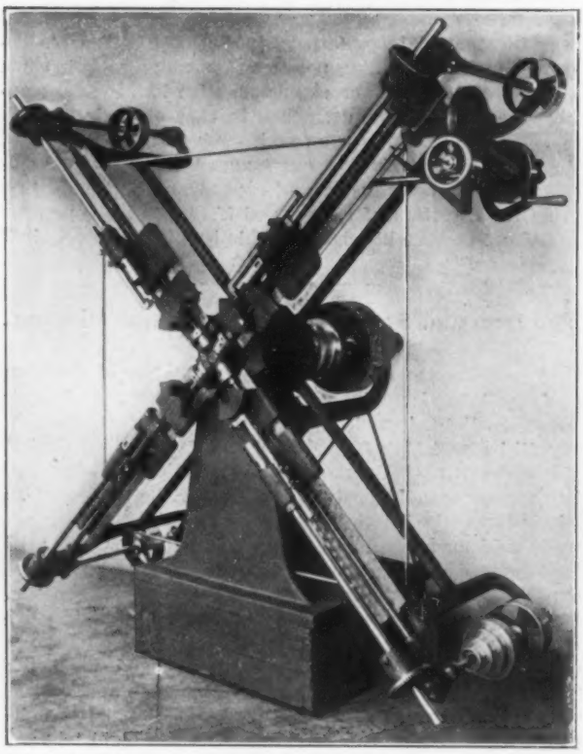
The following reports on work carried out during the past year by holders of Carnegie research scholarships will be submitted: "Hardness of the Constituents of Iron and Steel," by Henry C. Boynton, Cambridge, United States; "Heat Treatment of Wire," by J. Dixon Brunton, Musselburgh; "Quaternary Steels," by L. Guillet, Paris; "Influence of Carbon on Cast Iron," by W. H. Hatfield, Sheffield; "The Preparation of Carbon-free Ferromanganese," by E. G. Ll. Roberts and E. A. Wraight, London; "Deformation and Fracture in Iron and Steel," by Walter Rosenhain, Birmingham.

A circular has also been issued relative to the approaching visit of American engineers and the joint meeting of members of the Iron and Steel Institute and the American Institute of Mining Engineers in London during the week commencing July 23. The information given in this circular was well covered in the paragraph published on page 1278 in *The Iron Age* for April 12.

A Hoefer Special Drill.

The novel drill illustrated might properly be called a multiple-spindle radial drill, although it has no resemblance to either of the tools commonly known by those names. The ordinary radial drill is more strictly a radial arm drill and is often so classified, and the ordinary multiple-spindle drill has its spindles parallel, whereas in this tool the four spindles are radially disposed to drill to a common center. It was recently built to order by the Hoefer Mfg. Company, Freeport, Ill., for drilling flanges on tubing four holes at a time.

The heads of each spindle are gibbed on radial arms and are adjusted toward and away from the center to permit drilling holes in a circle from 3 to 40 inches in diameter. Under each of the spindles is a sliding head, the four together constituting an internal chuck for holding the pipe to be drilled. The projecting segmental lugs are for small pipe, and larger pipe is held on the larger segments. The sliding heads in which the spindles revolve are fed toward and away from the center automatically by screw feeds. These screws are adjustable to take care of long or short drills.



A Special Multiple Spindle Drill Built by the Hoefer Mfg. Company, Freeport, Ill.

The drill spindles are driven by a three-step cone pulley, shown on the countershaft at the rear of the machine, and on this shaft are located the four pulleys from which radiate the belts to the four pulleys on the outer ends of the radial arms. These latter pulleys are on shafts which drive the spindles through bevel gears. Any of the spindles may be adjusted toward or away from the center independently of the others. The cone pulley on the lower right hand arm drives a cone pulley directly over it for the feeding mechanism. The latter cone pulley drives a worm and worm gear through which power is transmitted to one of the feed screws by bevel gears. This screw carries a bevel pinion meshing three others in the center of the machine, from which the other screws are driven. The screws can be operated to feed the spindles by hand, either rapidly, through a crank on the worm wheel of the feed drive, or more slowly through a hand wheel on the worm shaft, as is plainly shown on the upper radial arm at the right of the machine.

On each spindle is an adjustable drill gauge to properly center the hole. The feed has also an adjustable automatic stop, so that holes may be drilled to any given depth, at which time the automatic stop trips the feed.

Prosperity in Scotch Metal Working Industries.

GLASGOW, Scotland, April 13, 1906.—The volume of trade for the first quarter of the year in iron and steel and in products into which they enter constitutes a record in the industrial history of this district. All the leading branches have been working at high pressure and double shifts and the output has been enormous. The aggregate would have been even greater had there been more liberal supplies of steel and iron. The production of steel locally has been greatly increased in the past six months, but is yet unequal to full requirements. Notwithstanding the active conditions which have prevailed a quiet tone now rules in iron and steel in the fear that the best of the good times have passed. But though there has been a pause there has been a well sustained demand for finished iron and steel and inquiry indicates a probable early expansion.

In the engineering industries activity prevails. Marine engineers are best off of all, but the locomotive and electrical sections are very well to do and prospects are encouraging. Makers of sugar machinery are busy on export orders. Boiler makers have never been better employed on land and ship boilers, the former largely for the colonies and the East. Tubemakers have well filled order books and pipe founders are better employed than for some time past. Sheet mills have had an excellent quarter and have still plenty of business, while car builders are overwhelmed with contracts.

Scotch shipbuilders have had a record quarter, the vessels put into the water during the past three months having been 81 in number and 137,640 in tonnage. This compares with 55 vessels of 114,716 tons in the first three months of last year and with 75 vessels of 117,940 tons in the first quarter of 1899, the previous record. The March contribution to the total this year was 35 vessels of 60,304 tons. Such an enormous amount of tonnage turned out in three months means that our shipyards have been exceptionally well employed on construction work, apart from the large amount of repair work customary at this season. The launchings are by no means equaled by new contracts booked in the quarter. These do not exceed 60,000 tons. They would have been larger had ship owners not been deterred by the rapid advance in the cost of steel and other material. Further, the threat of a great strike still hangs over this district. The shipyard workers and machinists have decided by ballot to strike if the Federated Shipbuilding and Engineering Employers will not consent to pay wages in future every week instead of every fortnight. The employers object because of the loss of time in drinking bouts after every pay day. They have promised to give their final decision before the end of this month.

About 83 per cent. of the energy furnished from the subway power station in New York City appears as heat in the subway, according to a report recently made by George S. Rice, chief engineer of the Rapid Transit Railroad Commission. This amount of heat will be about twice as great as it was last year when the train service in the subway has been increased to its full capacity. While a small part of this heat escapes through the passages connecting the stations and the streets, the adjoining ground receives the greater part of it after being dissipated through the floor, walls and roof. The remainder of the heat increases the temperature of the subway from 12 to 20 degrees, according to the season of the year. To remedy effectually the oppressive heat and bring about a more frequent renewal of the air, it will be necessary to install a new system of ventilation.

An immense dock nearly ½ mile in length, 1000 feet in width, and covering an area of 34 acres, has recently been completed at Cardiff, Wales. It is designed to accommodate the largest vessels afloat. About 1500 workmen were employed for seven years in the construction.

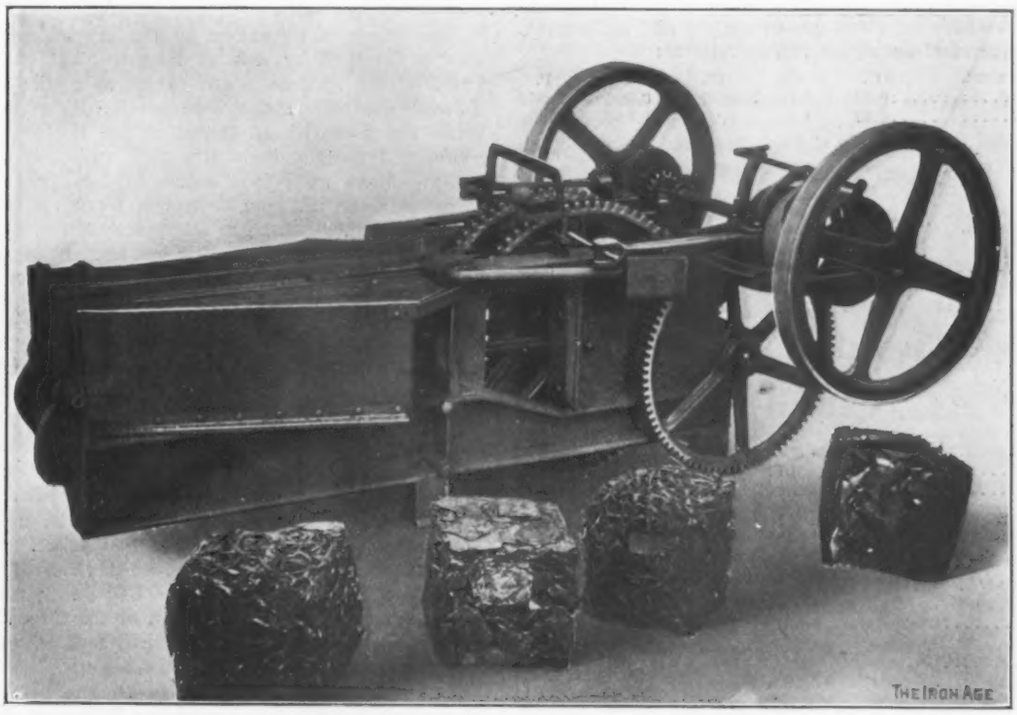
The Famous Scrap Busheling Press.

Dealers in old material accumulate a large amount of sheet and tin scrap of a widely varying nature, and it is not readily marketed unless baled for handling. Sheet and tin mills also are large scrap producers, and higher prices are readily obtainable for this material when suitably compressed to facilitate handling than when sold loose. The sheet metal scrap busheling press shown in the accompanying illustration, built by the Famous Mfg. Company, East Chicago, Ind., was designed to meet the needs of scrap yards and rolling mills for the baling of sheet, wire and tin scrap. This press bales down to 18-gauge sheets, and even tin cans can be baled at one operation. The bushels, after they are released from the great pressure and expanded, are less than 15 inches square and come within the size of the lower tonnage scale of the Amalgamated Association of Iron and Steel Workers for busheling in iron mills. They vary in weight from 20 to 50 pounds, according to the nature of the material used.

The machine weighs 3500 pounds and requires about 4 horse-power to operate it. The frame of the press is cast in one piece and supports the driving mechanism at one end and the baling chamber in which the scrap is pressed at the other end. The baling chamber is of contracting cross section in the direction of the compressing stroke, and the sides are of heavy steel plate construction reinforced with steel angles to withstand the heavy pressure exerted against the sides by the scrap during the forward movement of the plunger arm. This arm is constructed of heavy steel bars and is actuated by a toggle movement. The head is a cast iron plunger having two steel plate wings hinged to its forward end, which move along the sides of the chamber with the forward movement of the plunger. The chamber cover, which is counterbalanced, is held in place by an eccentric clamp.

Power is transmitted to a main driving shaft by gears from a pulley shaft carrying a fly wheel on each end. The base toggle arm is fastened to the main driving shaft and is provided with a toggle pitman which is connected to a crank between the inside twin gear wheels. As these twin gears revolve the toggle arm is drawn down, advancing the plunger to the end of its stroke, which occurs just as the gears pass the dead center. After the dead center has been passed the toggle joint is broken and the plunger is withdrawn. Two-thirds of a revolution of the gears is required to advance the plunger and the other one-third to bring it back, so that it is withdrawn twice as quickly as it is advanced. As the plunger rebounds a friction clutch is disengaged automatically, which stops all moving parts except the fly wheels. Two steel friction pinions on the main shaft being loose permit the fly wheels to continue their momentum, so that when the press is charged and ready for the next operation, engaging the friction clutch operates the press at full speed.

The machine is provided with a clincher block, which permits making the bales denser. Tie slots are provided so that the bundles may be wired, but this is seldom necessary except when tin cans are to be busheled, which do not bale together as other materials. The busheling operation is completed with one forward movement of the plunger, and the capacity of the press varies according to the material used. Eight to 10 tons daily can be busheled under favorable circumstances, and even a greater output has been secured.



A Sheet Metal Scrap Busheling Press Built by the Famous Mfg. Company, East Chicago, Ind.

Large Contracts for Tod Gas and Steam Engines.—The William Tod Company, engineer, founder and machinist, Youngstown, Ohio, has received some large contracts from the Carnegie Steel Company for engines, as follows: For the Duquesne Steel Works, two tandem compound piston valve engines having steam cylinders 34 inches and 58 inches by 60 inches; for the Carrie furnaces, two horizontal compound high duty crank and fly wheel pumping engines, each having a capacity of 10,000,000 gallons in 24 hours; for the Homestead Steel Works, one tandem compound piston valve engine having steam cylinders 32 inches and 52 inches by 60 inches; for the Ohio Steel Works, one 1650 horse-power gas engine. This last engine will be of the twin tandem four cycle type as designed by the William Tod Company. It will be employed in driving a 1000-kw. electric generator and will form the nucleus of a considerable gas engine installation.

The first turbine steamship built in the United States was launched at the Roach Shipyard at Chester, Pa., on Saturday, April 21. The vessel is the Governor Cobb and is intended for the Boston-New Brunswick trade of the Eastern Steamship Company of Boston. Its length is 290 feet and the width 51 feet. The motive power is Parsons turbines, which were built by the W. & A. Fletcher Company, Hoboken, N. J.

The Effect of Annealing on Steel Rails.

A paper on the above subject was recently presented to the Institution of Civil Engineers, London, England, by Thomas and Charles R. Andrews. As this paper has not appeared in the technical journals, the following abstract, which has been specially prepared for these columns, will doubtless be appreciated by those interested:

Annealing is a very loose term and has widely different meanings, but in this case it was similar to the heat treatment given good steel castings. Three temperatures were chosen, namely, 770, 850 and 940 degrees C. (1418, 1562, 1724 degrees F.)

The pieces of rail taken for each series of experiments were placed on the bed of a large reheating furnace, covered with powdered lime, and one junction of a Le Chatelier pyrometer inserted in the lime. A diagram, in the original paper, shows the history of each annealing.

The first lot of rails was annealed at 770 degrees C. (1418 degrees F.) It took 25 hours to reach this temperature, and an additional 72 hours to arrive again at that of the atmosphere. The rails were of English bull head section, varying from 85 to 92 pounds per yard, and were chosen to contain, from an English standpoint, medium and high percentages of carbon and manganese. An average of six analyses ran as follows:

Kind of steel.	C.	Mn.	Si.	S.	P.
Medium	0.39	0.75	0.058	0.066	0.066
High	0.47	1.10	0.069	0.054	0.059

Physical tests, machined from the head, gave the following figures:

Kind of steel.	Condition.	Elastic limit. Pounds.	Ultimate stress. Pounds.	Elongation in 2 in. Per ct.	Reduction of area. Per ct.
Medium	Unannealed	42,260	86,330	23.2	32.8
	Annealed	42,403	82,813	25.7	41.8
High	Unannealed	57,322	106,019	15.3	20.8
	Annealed	48,989	96,858	20.6	34.0

The second series of rails took 35 hours to reach 850 degrees C. (1562 degrees F.) and an additional 65 hours to get back to 200 degrees C. The analyses were as follows:

Kind of steel.	C.	Mn.	Si.	S.	P.
Medium	0.39	0.77	0.06	0.067	0.063
High	0.48	1.01	0.09	0.065	0.063

The results of the tensile tests from the head were:

Kind of steel.	Condition.	Elastic limit. Pounds.	Ultimate stress. Pounds.	Elongation in 2 in. Per ct.	Reduction of area. Per ct.
Medium	Unannealed	44,016	89,062	20.5	30.4
	Annealed	43,792	84,605	24.0	37.7
High	Unannealed	62,989	105,280	15.4	19.9
	Annealed	52,237	97,507	19.6	28.6

The third series was annealed at 940 degrees C. (1724 degrees F.) It took 75½ hours to reach this temperature and an additional 61 hours to get back to 380 degrees C. The analyses of the steels taken were:

Kind of steel.	C.,	Mn.	Si.	S.	P.
Medium	0.41	0.70	0.065	0.076	0.063
High	0.46	0.98	0.078	0.068	0.066

The physical tests from the head were as follows:

Kind of steel.	Condftion.	Elastic limit. Pounds.	Ultimate stress. Pounds.	Elongation in 2 in. Per ct.	Reduction of area Per ct.
Medium	Unannealed	....	85,613	22.8	33.0
	Annealed	....	79,856	23.7	35.9
High	Unannealed	51,251	99,155	14.6	18.2
	Annealed	45,651	90,260	21.9	33.6

Experiments were carried out at 850 degrees C. and 940 degrees C. to determine the loss in weight and size due to annealing. The rails, 85 pounds to the yard, with medium carbon and manganese, lost 3.2 per cent. by weight at 940 degrees C., and the high carbon and manganese rails lost 3.81 per cent. The results indicate, generally, that the loss from oxidation during annealing is somewhat greater in rails containing high percentages of carbon and manganese.

Careful analyses were made of the rails in the unannealed and annealed conditions. It was found that the general composition was not greatly affected, although the carbon contents appeared rather higher in the annealed steels.

To determine the effects of annealing on the hardness, pieces 6¼ inches long by ¼ inch square were machined from the bottom of the rails and the longitudinal faces carefully polished. Each piece was then subjected in a testing machine to pressures of 6, 8 and 10 tons per inch width, from a very fine knife edge, forming the angle of a bar 1½ inches square, of specially hardened and polished steel. The comparative indentations were measured to 1-1000 inch. Three indentations were made on each piece 2 inches apart. On the upper surface the piece elongated; in one case 0.33 per cent, while the under surface was elongated only 0.16 per cent. A comparison of the results shows that the hardness of the unannealed medium carbon and manganese rails was, on an average, about 24.26 per cent. less than that of the high carbon and manganese rails in the same condition. Annealing reduced the hardness, in the case of the medium rails, at 850 degrees C. by about 6.74 per cent., and at 940 degrees C. by about 14.07 per cent. With the high carbon and manganese rails the reduction was 13.06 per cent. and 18.13 per cent., respectively. The results show that the reduction in hardness, due to annealing, is greatest at a temperature of 940 degrees C., and that at either temperature it is greatest in the case of the high carbon and manganese rails.

The effect of annealing on the crystalline structure was ascertained by careful microscopical examination. Longitudinal sections were taken near the rail face. Annealing brought about more interlocking of the constituents and removed all traces of the lattice-like aspect generally typical of ingot structure, which, if allowed to remain, is an undoubted source of local weakness. In some instances the long strings of ferrite were still visible after annealing. The microsections convey the general impression that annealing has brought about a more regular dispersion of the pearlite, or, in other words, a more marked uniformity of structure. G. B. W.

Lake Commerce Through the Sault Canals in 1905.

The statistical report of lake commerce passing through the canals of Sault Ste. Marie, Michigan and Ontario, in the season of 1905, has just been published under the direction of Col. Chas. Davis, as compiled from official records. The total freight traffic was 44,270,680 net tons for the season, an increase of 12,724,574 tons, or 40 per cent. over 1904. The traffic through the American canal was 88 per cent. of the total freight, 85 per cent. of the total net registered tonnage and 52 per cent. of the total number of passengers carried, the amounts being 38,802,190 tons of freight, 31,121,233 registered tons and 28,401 passengers. Compared with the season of 1904 there was an increase of 12,284,274 tons of freight, or 46 per cent.; 10,961,191 registered tons, or 54 per cent., and 6795 passengers, or 31 per cent. The American canal opened April 14 and closed December 16, 1905, making the length of its season 246 days. The traffic through the Canadian canal was 12 per cent. of the total freight, 15 per cent. of the total registered tonnage and 48 per cent. of the passengers carried, the amounts being 5,468,490 tons of freight, 5,496,466 registered tons and 25,803 passengers. Compared with the season of 1904 there was an increase of 440,300 tons of freight, or 9 per cent.; 1,292,370 registered tons, or 31 per cent., and 9714 passengers, or 60 per cent. The Canadian canal was opened April 10 and closed December 20, 1905, making the length of its season 255 days. The total valuation placed on the freight carried through both canals is $416,965,484. The amount of iron ore through the American canal was 28,408,076 net tons, through the Canadian canal, 2,924,561 net tons.

A stock company is being organized to introduce a process of manufacturing armor faced rails under the patents of W. C. Coyan of Homestead, Pa. The invention covers a process of tempering and hardening the heads and wearing faces of steel rails or the flanges of beams and girders. Under this process the head and face of a rail get four chillings and four reheatings.

The New Roebling Works.

At Kinkora, N. J., located on the Delaware River some ten miles below the city of Trenton, the John A. Roebling's Sons Company, manufacturer of wire rope, insulated cables, &c., has in the course of construction a large plant for the manufacture of its various products. The present plant of the company at Trenton has become inadequate for its increasing business, and as it was impossible to further enlarge at the present location a site of 250 acres, located about 1 mile below Kinkora Station on the Amboy division of the Pennsylvania Railroad, was purchased. The property has a frontage of over 1⅛ miles on the Delaware River, in connection with which the company owns riparian rights.

In addition to the new plant the company has also in course of construction a model town to house the employees of the works, who it is expected will number over 3000 when the plant is in full operation. At the present time there is erected on the site of the plant, which covers about 50 acres of ground facing the river front and some 20 feet above mean low water, a rod mill, boiler house, dynamo and pump house and a gas producer house. All these buildings are of structural steel construction, with the exception of the dynamo and pump house, which is of brick. While all these buildings are more or less in a state of incompletion a large part of the equipment for most of them is already on the ground and in course of installation, under the supervision of J. Ecklund, the company's managing engineer on the plant.

The gas producer house for supplying gas to the heating furnaces in the rod mill is equipped with eight producers. One-half of the complete boiler installation, which will consist of 16 Babcock & Wilcox boilers, aggregating 8000 horse-power, is in place in the boiler house. The remaining half will not be installed until after an additional boiler house, which is to be a duplicate of the present one, has been erected.

In the rod mill, which will ultimately have a capacity of rolling 500,000 pounds of rods per ten-hour turn, the installation of machinery and equipment is progressing rapidly, and it is probable that this department of the plant will be the first in operation, it being the expectation of the company to have at least a portion of it working by the coming September.

Foundations are being started for a large open hearth steel plant, which will contain three 30-ton furnaces and one 50-ton furnace. The acid open hearth process will be used at this plant, the product being almost entirely hard or high carbon steel. It was the original intention to use oil as fuel in connection with this plant, but it has now been decided that producer gas will be the fuel for all heating operations used in the course of manufacture throughout the works. A 26-inch blooming mill is to be installed, but the building for this, as well as those for many minor purposes, has not yet been started. Structural steel will be used almost entirely for the various buildings, these being erected on concrete foundations, for which a depth of 40 feet has in many cases been found necessary, owing to the sandy nature of the ground. It is the intention of the Roebling Company to add additional mills for wire making and other manufacturing purposes as fast as possible, so as to relieve its present Trenton plant of its congested condition.

The water supply, both for the plant and for the model town, will be taken from the Delaware River, a 6-foot brick and concrete conduit 1500 feet long being required for this purpose. Electricity will be used extensively, both for lighting and for mechanical drives. Boilers and gas producers throughout the plant will be hand fired, coal being delivered on the boiler and producer room floors direct from the cars, which enter the buildings on trestles. The absence of mechanical stokers on boilers and other mechanical devices is one of the notable features of the plant, as far as it has been completed.

Standard gauge tracks will traverse all sections of the plant, it being the company's intention to avoid the use of the usual narrow gauge industrial service entirely.

Four locomotives and 60 steel cars have been ordered for use about the plant of the company and for the transportation of rods from the new mill to its Trenton plant, which can be done at a less cost per ton than is now found to be the case in transporting the rods from one department to another at the present plant.

The model town is situated on high ground overlooking the river and the plant, and 48 small and 24 larger dwellings, as well as large boarding houses and a hotel, have already been erected. A contract for 90 more small houses has just been let, and more will be erected as fast as the need arises. All the dwellings and other buildings in the new town are built of brick, the streets are all to be 100 feet in width, and a complete sewerage system will be installed. Filtered water will be supplied the town by means of pumps from the company's plant, and the streets and public buildings will be lighted by electricity, also obtained from the company's plant. Gas mains will be laid, the gas being supplied by the Public Service Corporation of New Jersey. The plumbing and general sanitary systems will be modern in every detail and no effort will be spared in making the town attractive as well as healthful for its employees.

All the plans for the new plant, as well as for the town, have been worked out by the company's engineers, and while contracts for grading, erection of structural buildings, for much of the equipment, &c., have been let to other concerns, a large portion has been done in its own works and under the direct supervision of the officers of the company, and particularly under that of its president, Charles G. Roebling.

While the plant and model town are both known as being located at Kinkora it is thought highly probable that it will ultimately be known as "Roeblings," after the name of the company building the plant.

A Thermit Repair.

An interesting thermit repair was recently accomplished by L. Heynemann, consulting engineer, at San Francisco, Cal., upon a large forged steel dredge bucket arm measuring 2 inches thick by 12½ inches wide at the break. The fracture was complete. To facilitate the flow of thermit steel through and between the broken parts a number of holes were drilled in the crack. A sheet iron mold box was first closely fitted to the arm and carefully lined with sand and flour core mixture and thoroughly baked. After the mold was placed in position the parts were heated by a blow torch to expel moisture and avoid chilling the thermit steel.

The thermit reaction produces a temperature of approximately 5400 degrees F., so that, as in this instance, it is possible to add to the contents of the crucible a considerable percentage of steel punchings or rivets, which somewhat lowers the temperature and increases the quantity of liquid steel. Two hundred and fifty pounds of thermit were used (yielding after combustion 125 pounds of liquid steel and 125 pounds of slag) and 40 pounds of small steel rivets. On the completed repair a reinforcing collar of thermit steel was cast around the weld to give extra strength.

Tests covering the strength and permanency of thermit welds were recently made at the works of the Fore River Shipbuilding Company, Quincy, Mass. Bars of rolled steel 2 inches by 4½ inches were drilled, broken and welded with thermit, and standard test bars cut from the center of the weld. As a basis of comparison, test bars were also cut from the unwelded portions of the stock. The following gives the gist of the results obtained:

Description.	Elastic limit.	Tensile strength.
Weld	32,000	59,000
Stock	38,500	60,500
Weld	33,700	61,800
Stock	36,850	63,400

As an average of the two cases, it will be noticed that the elastic limit suffers a reduction of about 12.7 per cent. after the welding, but only about 2.5 per cent. of the tensile strength is lost.

A unique sightseeing elevator has been erected to the summit of the Burgenstock in Switzerland. The car is entered at the base of the cliff, and rises 143 feet through a shaft of solid rock, which continues as a square steel structure to an additional hight of 352 feet.

New Railroad Building in Mexico.

President Diaz Summarizes Recent Construction.

DURANGO, MEXICO, April 18, 1906.—The address of President Diaz to the Deputies at the opening of Congress on the evening of April 1 was marked by a more than usually optimistic note. The increase in public revenue and the satisfactory condition of the country in relation to its finances was dwelt upon, the existing prosperity being in the President's opinion in a great measure due to the change in the monetary system, which "has given a powerful stimulus to the investment of foreign capital in the country." He added: "It may be affirmed that the fixity in value of our currency is now an accomplished fact, and, thanks to that fact, it will be possible to exploit the great wealth of our soil which had remained unproductive, owing to the insufficient resources available to the nation." The President gave a summary of recent railroad construction as follows:

The new railroad construction totals 304 km., contributed by the Kansas City, Mexico & Orient, the Pan-American, the Cananea, Rio Yaquin & Pacific, the Linares-San José and the Zitacuaro-Joconusco railroads. The Federal railroad system at present aggregates 17,170 km. The following work has been done on the Tehuantepec Railway: 28-kg. rails have been replaced by rails of 39 1-3 kg. on 50½ km. of the road, and the earthwork, ballasting and renovation of ties have been done for the same length. Provisional bridge work of an aggregate length of 151 m. has been replaced by permanent bridge work, with the customary masonry abutments; and 37 new freight cars have been put into service. The work of reconnaissance and location for a railroad from Guadalajara to Alamos has begun.

Activity in mining was shown by the fact that 1526 title deeds to mines were issued in the first half of the current fiscal year. In the same six months, July 1 to December 31, of last year, 498 patents for inventions and 46 patents for models and industrial designs were granted, and 387 trademarks registered.

Railroad Projects and Extensions.

Among recent railroad projects is one for the construction of an electric line to connect with the National in the State of Puebla, and to run through the capital of that State and on to the town of Atlixco. A company, to be known as the Puebla & Southwestern Railroad, will construct the road. J. A. Macnaught, the traffic representative of the National lines in the city of Puebla, holds the concession. The line will be about 60 km. in length and the estimated cost of construction and equipment is $1,000,000.

It is reported that the National Railway Company intends to purchase the Hidalgo & Northeastern Railroad, which runs from the City of Mexico to a point beyond the city of Tulancingo, in Hidalgo, and that the purchasing company will extend the line to Tuxpam and Tampico and south to Vera Cruz. The proposed extension would run through a fine tropical agricultural district and give relief to a colony comprising a number of citizens of the United States, who settled in the Tuxpam Valley 10 or 12 years ago and who have been waiting for transportation facilities ever since. The Hidalgo & Northeastern Road belongs to Señor Gabriel Mancora and associates. The sale of the property has been several times erroneously reported in past years.

A movement is being agitated in the State of Queretaro for the extension of the Queretaro Southern Railway from the capital of the State to San Isidro and from that place to the town of Acambaro, in the State of Guanajuato. José Calvo and Alfred C. Spencer of the city of Queretaro are the promoters.

Referring to the activity in railroad construction in Mexico, a daily journal published in the capital gives a résumé of the principal projected extensions and betterments, as follows:

The Mexican Central will practically complete its construction on the west coast at Manzanillo and at Ocotlan and will construct a part of its Tampico "short line."

The National Railroad will build from San Felipe to Guadalajara and complete a number of minor construction projects already commenced. It will also commence work on its extension of the Hidalgo property, which will be purchased in the near future. An extension to its belt line will also be built.

The Southern Pacific will spend several millions of dollars in pushing its extensions in Mexico.

In the city it is probable that a union depot will soon be under way and it is believed at least $10,000,000 will be expended on the depot and terminals. In Vera Cruz $6,000,000 will be the cost of the construction of a union depot and terminals. An additional $6,000,000 will be needed to convert the Interoceanic into a standard gauge road.

The Mexican Central Railway Company has practically completed the location of its short line from the capital to Tampico. It is expected that actual construction work will soon be commened. An extension of the same company's line from Marfil to Guanajuato is also to be entered upon within a short time.

Work is soon to be begun upon the proposed electric line to connect the city of Guadalajara and Lake Chapala, the contract for which is held by John W. Shepard & Co. The electric road will be operated by the Jalisco & Michoacan Railway Company, which also intends to make other extensions of its system.

Industrial Notes.

The death is announced from the city of Guadalajara of John N. Lauth, manager of the iron plant at Ferreria, in the State of Jalisco. The deceased was well known to Pennsylvania iron and steel manufacturers. He formerly resided at Howard, Pa.

So great has been the increase in freight traffic upon Mexican lines that a congested condition is reported on several systems on account of the delay in the receipt of cars for which orders were placed several months ago.

During 1905 the Monterey Iron & Steel Company produced 20,125 tons of iron and steel products, divided as shown in the following exhibit, given out at the recent meeting of the shareholders: Structural iron, 8239 tons; commercial iron, 9445 tons; steel rails, 1944 tons; splice bars, 497 tons.

Eight new locomotives have recently been received from the United States for the Tehuantepec National Railway, being part of a large order for equipment placed some time since.

Application has been made by Joseph Turner for a concession to establish in the City of Mexico a factory for the manufacture of plumbing and sanitary supplies.

Foreign capitalists whose names are not given have applied to the Government for a concession to establish an arsenal and factory for the building of submarines, gas launches and other marine craft. The port of Salina Cruz is the proposed situation.

Thomas H. Wheless desires to engage in the building of steam and electric locomotives in Mexico and has applied for a concession to erect a plant.

The Mexican Light & Power Company, Limited, has recently placed an order for $200,000 worth of equipment for a number of receiving stations. J. J. D.

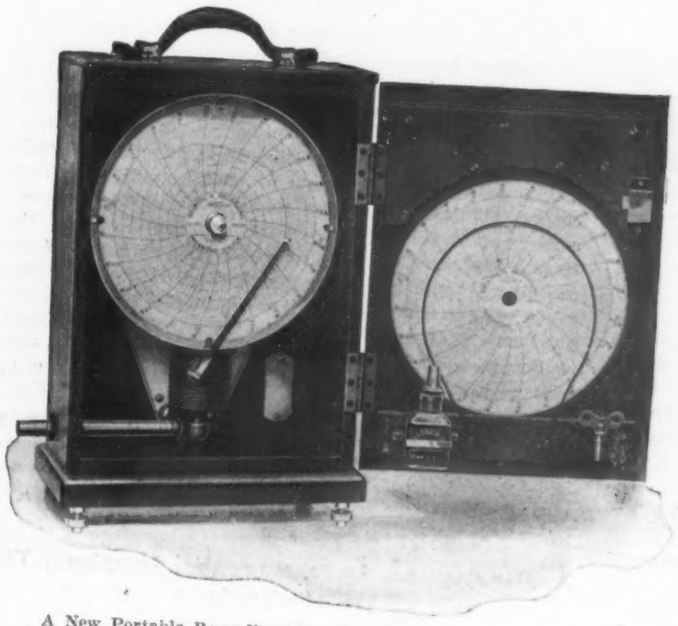
The Roberts & Abbott Company, Incorporated, Schofield Building, Cleveland, announces that it has added a new department, that of industrial and architectural engineering, which will be in charge of Herbert F. Stimpson. The work of this department includes investigating conditions at industrial plants, advising as to improvements, determining the cost of the changes and the resulting economies. Mr. Stimpson has been for a number of years connected with large industrial establishments and has designed buildings adapted to various manufacturing uses.

Frank F. Prentiss, president and general manager of the Cleveland Twist Drill Company, in his inaugural address as president of the Cleveland Chamber of Commerce last week indicated the objects for which that body should work in the coming year, emphasizing the extension of manual training in the public schools, a new union depot, the solution of the street railroad fare problem and the abolition of smoke. Ambrose Swasey of the Warner & Swasey Company is the retiring president of the Chamber.

Bristol Portable Recording Gauges.

The value of recording pressure gauges in promoting safety and economy has long been recognized and their adoption has been quite general in mills, factories, water and gas works, electric light plants, power stations, public buildings, blast furnaces, mines, &c. Many users have felt the need of a light, compact, portable recording gauge, and particularly an instrument so well made and free from delicate mechanism that an ordinary workman can manipulate it successfully with reasonable care. To cover these requirements the Bristol Company, Waterbury, Conn., has placed upon the market a modification of its well known recording gauge.

In these portable gauges the metal case has been omitted, the pressure tube and clock for driving the chart being mounted on a light aluminum back, which is in turn mounted in a wooden carrying case designed with special reference to ease in handling and making connections to the source of pressure. Two types are made, one for recording pressures which may exceed 5 pounds per square inch and one for very low pressures. With the high pressure gauge, which is the type illustrated, a special flexible connection with unions is supplied to facilitate connecting to piping at various angles. When a permanent installation is unnecessary this instrument could be used to advantage, as, for example, on boiler tests, water mains or fire protective systems, where a few accurate and continuous records would settle disputes or lead to better service.



A New Portable Recording Pressure Gauge Made by the Bristol Company, Waterbury, Conn.

For gas pressures in outlying districts, mine ventilating pressures, draft or light vacuum the low pressure gauge, which closely resembles the one illustrated, is adapted, since it is capable of recording pressures as low as 1-20 inch head of water. Connection is readily made by means of a rubber hose to a nipple, which projects through the side of the case. A simple clamping device is employed to hold the pressure tube rigidly when the gauge is being transported.

The portable gauges weigh about one-third as much as the standard form gauges mounted in a carrying case, which have been used heretofore as a substitute. Both forms are furnished with leveling screws to facilitate adjusting. Provision is also made for carrying a supply of charts and ink with each gauge.

A Casting Process for Armor Plate.—Reference is made in Sheffield, England, correspondence of the London *Ironmonger* to the experiments carried on by the Hadfield Steel Foundry Company, Limited, in that city in the casting of light armor plates, the process dispensing with forging or rolling. Patents covering the method have been taken out by R. A. Hadfield. It is stated that "the metal is cast in a mold so formed as to produce a plate with a face having ridges and channels or corrugations. After pouring and while the casting is hot it is removed to a furnace to cool down slowly to prevent internal strains. Then the sand is removed and the casting carefully cleaned. It is next put into a furnace and upon the corrugated surface charcoal is placed to a thickness of several inches. The furnace is raised to a high temperature—between 900 and 1100 degrees C.—and the plate is allowed to remain there for several days; it is then permitted gradually to cool. The plate is reheated and cooled four or five times with a gradual reduction of the temperature to which it is reheated, and at the final heating is dipped or sprayed with oil or water, according to the hardness required, so that the corrugated face, being hotter than the back, will become hard, while the back remains soft and tough."

The Use and Abuse of Graphite Crucibles.

The Ross-Tacony Crucible Company, Tacony, Pa., has issued in pamphlet form a reprint from the *Brass World* of an illustrated article, by Erwin S. Sperry, on "Graphite Crucibles, Their Use and Abuse." Mr. Sperry introduces the subject with the statement that the brass founder pays less attention to the care and use of his crucibles than to any other part of his business. At some length the composition of crucibles, method of manufacture, treatment of new crucibles and the ways of caring for crucibles to secure the best efficiency are discussed by the writer. He considers that tongs shorten the life of a crucible more than any other agent. He points out the large number of heats obtained from a crucible in furnaces of the tilting type, from which the crucible is not removed in pouring. It is not unusual in some of these furnaces to obtain 50 to 60 heats on a No. 200 crucible, as against 10 to 15 in a coal or coke furnace, from which the crucible is removed with tongs. Where the coal is packed tightly around a crucible, so that the top extends only an inch or so above the fuel, the tongs are frequently used to lift the crucible out instead of pulling out a grate bar and releasing the fire from the bottom. The writer says that if the brass founder will keep his crucibles dry and carefully anneal them before using he will find ample return for the labor. He favors carrying crucibles in stock, the manufacturer thus making sure if he stores them in a dry place that each new crucible will be free from moisture. The making of a good crucible for use in oil furnaces is a problem requiring particular care on the part of the manufacturer. A crucible for such use should glaze over in two or three heats, the melted slag on the surface protecting the graphite underneath and lengthening the life of the crucible. Several half-tone illustrations appear in the pamphlet, illustrating the effects of the abuse of crucibles, the effect of an oil furnace on the crucible; also the cracks which form at the top of the crucible when its life is nearly ended.

All offices of the American Steel Foundries at Chicago were removed on April 1 to the First National Bank Building and now occupy the entire sixteenth floor. Previously the offices were divided and variously located, the executive department occupying the larger part of the seventeenth floor of the Fisher Building and also a portion of the third floor, while the accounting and some of the other departments occupied floors in the Star Building.

One of two vessels ordered for the United States Steel Corporation was launched at the South Chicago yard of the American Shipbuilding Company on April 21 and was christened the J. P. Morgan. The steamer is 600 feet long, 58 feet beam and has 32 feet depth of hold. Her capacity will be 12,000 tons of ore.

The New Trademark Bill Passes the House.

WASHINGTON, D. C., April 24, 1906.—The bill for the modification of the Bonynge trademark act, recently reported with amendments from the House Committee on Patents, has been passed by the House by a unanimous vote, and it is believed it will be reported to the Senate and adopted by that body in time to receive the President's signature before the adjournment of Congress for the summer recess. The text of the measure, which was much simplified by the committee's amendments, was finally passed by the House in the following form:

Text of the Measure.

"That section 1 of the act entitled 'an act to authorize the registration of trademarks used in commerce with foreign nations or among the several States or with Indian tribes and to protect the same,' approved February 20, 1905, be and is hereby amended by inserting after the words 'description of the trademark itself,' the words, 'only when needed to express colors not shown in the drawing,' so that the section, as amended, shall read as follows:

"'That the owner of a trademark used in commerce with foreign nations or among the several States or with Indian tribes, provided such owner shall be domiciled within the territory of the United States or resides in or is located in any foreign country which by treaty, convention or law affords similar privileges to the citizens of the United States, may obtain registration for such trademark by complying with the following requirements: First, by filing in the Patent Office an application therefor in writing, addressed to the Commissioner of Patents, signed by the applicant, specifying his name, domicile, location and citizenship; the class of merchandise and the particular description of the goods comprised in such class to which the trademark is appropriated; a description of the trademark itself, only when needed to express colors not shown in the drawing, and a statement of the mode in which the same is applied and affixed to goods, and the length of time during which the trademark has been used. With this statement shall be filed a drawing of the trademark, signed by the applicant or his attorney, and such number of specimens of the trademark as actually used as may be required by the Commissioner of Patents. Second, by paying into the Treasury of the United States the sum of $10, and otherwise complying with the requirements of this act and such regulations as may be prescribed by the Commissioner of Patents.'

"Section 2. That the Commissioner of Patents shall establish classes of merchandise for the purpose of trademark registration, and shall determine the particular descriptions of goods comprised in each class. On a single application for registration of a trademark the trademark may be registered at the option of the applicant for any or all goods upon which the mark has actually been used, comprised in a single class of merchandise, provided the particular description of goods be stated.

"Section 3. That any owner of a trademark who shall have a manufacturing establishment within the territory of the United States shall be accorded, so far as the registration and protection of trademarks used on the products of such establishment are concerned, the same rights and privileges that are accorded to owners of trademarks domiciled within the territory of the United States by the act entitled, 'an act to authorize the registration of trademarks used in commerce with foreign nations or among the several States or with Indian tribes, and to protect the same,' approved February 20, 1905.

"Section 4. That this act shall take effect upon its passage."

Significance of the Changes.

The first section of the bill, which repeals the present requirement that an application for registration shall embrace a verbal description of the mark, in addition to a *fac-simile* thereof, provoked considerable discussion in the House. While the requirement regarding a verbal description appears at first glance to be merely an additional safeguard, it has been found in actual practice to imperil the validity of marks, as it has been held that a trademark owner is limited in his claim to the description set out in his application, even though it may differ somewhat from the *fac-simile*. Infringements have therefore been rendered comparatively easy in some cases and the rightful owners of marks have been unable adequately to protect them.

The second section of the bill, authorizing the Commissioner of Patents to establish classes of merchandise, is regarded by patent and trademark experts as embodying a much needed reform in the present practice. In explaining the operation of this section to the House, Chairman Currier of the Patent Committee said:

> This section provides that the Commissioner of Patents shall establish classes of merchandise for the purpose of registration of a trademark on an entire class of goods, provided always he is actually using the mark on his goods in interstate commerce. Now, that is the law in all the great commercial nations of the earth, and that principle obtained here until about two or three years ago. One concern in this country that makes carpenters' supplies stated to the committee that it would be forced under the construction more recently given to the law to make 80 applications and pay 80 fees. Manufacturers who desire to register abroad are met with the fact that registration of an American mark abroad is based upon registration here; so if a man is forced to split up his application here he is forced to do it in foreign countries, and it costs in some foreign countries from $40 to $75 for a single registration. Accordingly a manufacturing concern that is forced to make 80 applications here must pay for 80 applications abroad, and it is a great burden.

Restrictions on Foreigners.

Another important feature is embodied in section 3 of the bill. As originally drafted this section provided that any foreign manufacturer maintaining a "commercial establishment" in the United States should be accorded, so far as the registration and protection of trademarks used on the products of such establishment are concerned, the same rights and privileges that are accorded to owners of trademarks domiciled within the United States. This feature was criticised as being far too liberal and as giving foreign manufacturers who might only maintain a small office in the United States privileges that should properly be restricted to actual producers. The bill therefore limits the privileges to persons maintaining "a manufacturing establishment" in this country.

In presenting section 4 of the bill the committee took the position that there is nothing in the proposed changes to make it desirable that extended notice should be given before the new statute goes into force. W. L. C.

A Penalty on Increasing the American Tin Plate Trade.

For paying rebates on tin plate to the United States Steel Products Export Company—the export department of the United States Steel Corporation—the Chicago, Burlington & Quincy Railroad was fined $40,000 by the United States Court sitting at Chicago last week, and two of the officials of the road, Darius Miller and Claude G. Burbank, were fined $10,000 each. It was brought out in the trial that in 1904 the United States Steel Products Export Company took up with all the lines the question of making such freight rates as would enable it to compete with Welsh manufacturers for the large trade in tin plate going to that territory. It was found that in order to meet the delivered quotation of Welsh tin plate the United States Steel Products Export Company would not only have to sell the product close to the cost of manufacture, but that it was also necessary for the railroads to make a considerable reduction in freights. The railroads competing for this trade then decided to co-operate with American manufacturers in meeting foreign competition by making a net rate of 30 cents per 100 pounds from Chicago to Vancouver. This rate, which is 25 cents per 100 pounds under the regular rate, was not published by the railroads for the reason, it is stated, that if it became generally known the Welsh manufacturers might lower their rates at once to meet this competition. Furthermore, it was explained that the rate from Chicago to the United States Pacific Coast was 55 cents on shipments for domestic use and were the railroads to publish a rate of 30 cents to Vancouver shipments might be made

in bond to that point and the tin plates reshipped in bond to American cities on the Pacific Coast for 5 cents, which would then be a direct cut of 20 cents. In addressing the court, counsel for the railroad said: "These rates were made solely for the purpose of promoting business, which could not otherwise have been secured to American manufacturers. The results have been to promote American trade without injury to any American interests. When it is remembered that the Government itself gives a rebate of 99 per cent. of the duty paid on imported tin plate, when it is manufactured into cans and exported, in order to protect the American manufacturer against his foreign competitor, the departure from the railroad tariff in this case finds full justification in principle, if not in law."

First Shipments of Lake Ore.

No Surplus of Labor at the Mines.

DULUTH, MINN., April 21, 1906.—The season opened with a rush the present week, a large number of iron ore boats arriving from the lower lakes, many laden with ore and other freight departing. The Sault Canal and other connecting channels opened suddenly, whereas the date for interlake navigation had been set by many at a week or more later. Contrary to previous practice, the season is already in full swing. Every indication is for the biggest year that has been known. No labor trouble appears imminent at the mines, though the Western Federation of Labor was able last winter to organize in a number of smaller camps on the Mesaba range, as well as at some points on other lake ranges. But the spots at which organizations have been perfected are not of importance, and the policy always pursued by the more farsighted and liberal employers makes it difficult for any organization like the Western Federation to enter the Lake Superior region in force. Labor, however, is sure to be scarce and somewhat inefficient in the entire lake region this year, and the scale of wages will be high. These facts in themselves will make the task of getting out the millions of tons to be moved from upper lake mines a more than usually serious one. There is a far greater call for labor in the Northwest than usual. A great deal of railway building is under way, and this takes much labor that ordinarily might go into mines. Then, too, the lumbering operations of the Northwest are to be conducted in the coming few months on a scale greater than usual for the summer, on account of a shortage of winter cut logs and the immense demand for lumber all over the country. Building operations in every city of the Northwest are, as elsewhere in the United States, on a scale of importance not approached in years. The copper mines are constantly adding to their forces, and absorb most of the better class of experienced underground labor.

All the ore roads are receiving the additional equipment they ordered last fall, locomotives, steel cars, &c., and all the ore dock contractors are working overtime to complete their docks in contract time, but in most cases without much hope of doing so.

At the shaft of the Shagawa Iron Company the old Section 30, Vermillion range, a depth of 240 feet has been attained. The shaft cut ore at 115 feet, and continued in clean, hard ore, largely Bessemer, for 60 feet, when it went into mixed jasper and ore in which it still is. The drill hole, which the shaft is following, cut another lens of clean ore of very high grade at a depth of 260 feet and stopped, the bit having been lost there. The shaft should cut this ore shortly. The company has no hope of making shipments this year, as has been stated locally, but does expect to develop sufficiently to make a mine for 1907. It will be a long time before there will be sufficient data to afford judgment as to the extent of the deposit and the probable future of this most interesting and noted tract of Vermillion range land.

Activity in the Stambaugh District.

In the vicinity of Stambaugh, Menominee range, where there is more exploration than in most sections of that range, the year is opening well. A dozen large explorations are under way by the Buffalo & Susquehanna Iron Company, the firm of Oglebay, Norton & Co., Pickands, Mather & Co., Corrigan, McKinney & Co. and some others. The first named company has the Hiawatha, West Hiawatha, Tully and others, and on all of these ore has been found. Hiawatha is an old mine, and the option price to the present holders is about $140,000. Oglebay, Norton & Co. are exploring the Selden tract, on which there is an old shaft, and where they are sinking and drifting on a considerable scale. They have also the Waldron. Pickands, Mather & Co. have been quite active and are exploring the Fogarty, while their Caspian, already a large property, is being developed extensively underground to show what it may prove up. Considerable machinery has been ordered, including ample pumping equipment. The mine is likely to become one of the big mines of the county. At the Baker exploration Corrigan, McKinney & Co. are sinking a shaft through a deep overburden of wet sand, in a formation that neither the Oliver Iron Mining nor the Penn Iron Mining companies cared to attack. It is going down very slowly, and it may be months before the work is safely ledged.

C. T. Fairbairn, manager of mines for the Republic Iron & Steel Company, recently returned to Duluth from a conference with his company. This company mined at all of its Lake Superior properties about 350,000 tons last year. Most of this was from the Mesaba range, where it has a number of relatively small properties, including the Franklin, Kinney and Wills. It holds properties at Negaunee and in the Menominee range. This year its product will be about 600,000 tons, all but about 100,000 tons of which will come from the Mesaba. Its Kinney mine will be pushed heavily, and its Bessemer and Victoria shafts at the Franklin will be made into heavy producers. These two shafts have been practically idle for the past six or eight years. On May 1 this company will establish its Western office at Duluth, which will be far more convenient than heretofore.

Active Drill Work.

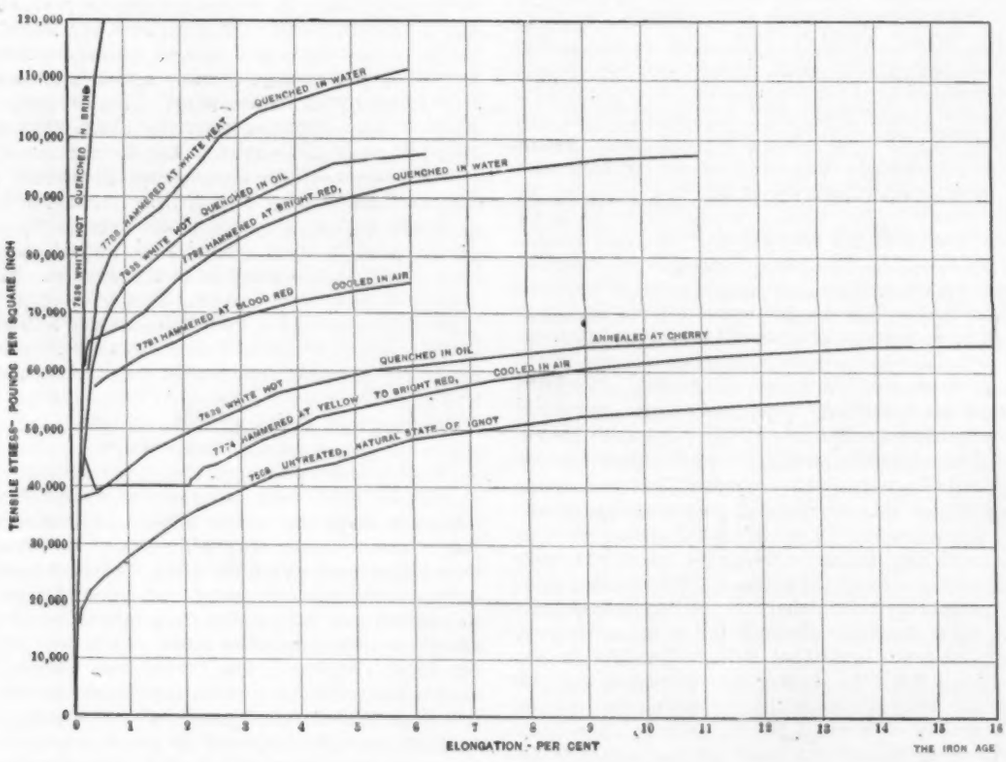
Drill men operating on the Mesaba range state that at least 500 drill crews are now working along that range, beginning at the east side of T 59-14 and continuing southwesterly beyond the Mississippi River in T 56-25. This is a distance of about 90 miles. A great many of the crews at work are for mining companies, engaged not only in proving new mines, but in carefully and thoroughly exploring properties as to whose extent and characteristics there was insufficient information. More and more of this sort of work is carried on now, and the amount will be increased year by year, as mines must be opened to supply the drain caused by the enormous shipments. This will offset to an extent the diminution of exploration of new lands. In addition to the drills working on the Mesaba there are at least 35 crews engaged on the Cuyuna range, with about the same results as have been secured there from the first. A few drills are employed in the Baraboo region, and a great many diamond machines on the old ranges of the lake where the Mesaba churn drill is not adapted to conditions. D. E. W.

For the casting of the main piece of the stern frame for one of the new turbine steamers of the Cunard Line, now being constructed on the Tyne and Clyde rivers, 69 tons of molten metal were required, and as now finished its weight is 50 tons. The after brackets, which were cast singly, have a weight of 22½ tons each, while the weight of the forward brackets is 24 tons each. These vessels will carry rudders weighing 70 tons, which, together with the stern frame and brackets referred to, make a total weight, for these parts alone, of approximately 220 tons. The enormous size of the main piece of the stern post afforded a problem in transportation of an unusual character, the dimensions of the frame far exceeding the load gauge of the British railways. This casting was shipped from the works of the Darlington Forge Company to Middlesbrough during a lull in traffic on a Sunday. The distance was covered in about six hours, the maximum speed of this "stern frame special" being 3 miles per hour. During the transportation of the casting it was found necessary to suspend all traffic on adjoining lines. Two powerful steam traveling cranes accompanied the train, these being brought into use upon arrival at Middlesbrough, from which point the casting was conveyed by water to the shipyards.

The Range in Tensile Properties of a Low Carbon Steel.

BY JAMES E. HOWARD.

Steel from the same ingot may display a wide range in tensile strength, due to methods of treatment. This is illustrated by the accompanying diagram on which certain tests, made at the Watertown Arsenal, appear with specimens of a low carbon steel having a chemical composition of 0.20 per cent. of carbon, 0.58 manganese, 0.015 silicon and 0.017 phosphorus. The tests comprised bars in the natural state of the ingot, forged and unforged bars which were subjected to heat treatment, and bars which were forged at different temperatures without other treatment.


TENSILE STRESS—POUNDS PER SQUARE INCH
ELONGATION—PER CENT
7636 WHITE HOT, QUENCHED IN BRINE
7635 WHITE HOT, QUENCHED IN OIL
7782 HAMMERED AT WHITE HEAT, QUENCHED IN WATER
7782 HAMMERED AT BRIGHT RED, QUENCHED IN WATER
7781 HAMMERED AT BLOOD RED, COOLED IN AIR
7639 WHITE HOT, QUENCHED IN OIL, ANNEALED AT CHERRY
7774 HAMMERED AT YELLOW TO BRIGHT RED, COOLED IN AIR
7568 UNTREATED, NATURAL STATE OF INGOT
THE IRON AGE

Range in Tensile Properties of Steel from the Same Ingot, Due to Heat and Technical Treatment.

The results here grouped were selected to show that the stress strain curves of a given steel may occupy nearly all parts of the diagram above the curve representing the metal in the primitive state of the ingot. The numerical values in the tensile tests of these selected bars, the specimens having stems 0.564 inch in diameter by 3 inches long, were as follows:

No.	Treatment.	Elastic limit per sq. in. Lbs.	Tensile strength per sq. in. Lbs.	Elongation. Per ct.	Contraction of area. Per ct.
7568	Natural state of ingot	17,000	54,880	15	21.4
7774	Forged at yellow to bright red, cooled in air	46,000	64,960	31	57
7639	Heated white hot, quenched in oil, annealed at cherry red	38,000	65,280	15.3	30.6
7781	Forged at blood red color, cooled in air	50,000	74,880	9	21.4
7782	Forged at bright red, quenched in water	60,000	96,480	16	30.6
7635	Heated white hot, quenched in oil	45,000	96,600	6.3	13.2
7788	Forged at white heat, quenched in water	40,000	110,880	10	36.4
7636	Heated white hot, quenched in brine	*	120,000	.7	1.5

* Elastic limit practically coincident with tensile strength.

The diagram was prepared with the object in view only as above stated, consequently the results presented do not follow the progressive order of each kind of treatment which was observed when making the tests.

The lower limit of tensile strength was displayed by the metal in the natural state of the ingot, the higher limit by the bar which was quenched in brine from a white heat, covering a range from 54,880 to 120,000 pounds per square inch. Intermediate results followed quenching done in a less energetic medium than brine, or when the effects of quenching were ameliorated by subsequent annealing, also by varying the treatment of the forged bars in respect to the temperatures at which they were worked.

The elastic limits ranged from 17,000 pounds per square inch in the ingot to 60,000 pounds in the bar forged at a bright red heat and quenched in water, not including for the time being the bar of maximum strength, in which the metal developed so slight a permanent set, before the rupturing load was reached, that the elastic limit may be said to have coincided with the tensile strength.

Sudden quenching of steel from a high temperature generally produces a greater effect on the tensile strength and ductility, raising the one and lowering the other, than is found to result from mechanical work. The highest strength in this and in a companion series of tests on a nickel steel ingot, also of low carbon, attended quenching from a white heat. High carbon steels, however, require partial annealing to display their highest tensile strength. This is attributed to the introduction of internal strains of great intensity during the operation of quenching, and without this relief disrupturing forces from within frequently occasion spontaneous rupture. High carbon steels, as a class, do not admit of the wide range in treatment which was given these low carbon ingots.

Many of the present results were quite acceptable, according to current ideas on the combinations of tensile properties which should be present in good steel. The ease with which the several features of the tests may be changed is clearly apparent in the results. The art of imparting high tensile values to special steels is rapidly advancing, and such modifications are generally accomplished along lines similar to those illustrated in the present tests.

After having imparted unusual properties or having witnessed the display of widely differing values in the same ingot metal, attention next centers, logically, on the question of their permanence and durability. Tests bearing upon this branch of the subject indicate that steels

may be strained a few thousand times, at least, with loads closely approaching the elastic limit without sensible effect on the integrity of the metal. It is believed that each of these several bars could thus for a time have their elastic strengths utilized. It would not be prudent, however, to assume that alternate stresses, repeated many millions of times, could successfully be applied to any without retaining a considerable margin between the working stress and the elastic limit of the tensile test.

Concerning the features elongation and contraction of area, respecting which the usual specifications are somewhat exacting, a favorable showing is made in these tests, excepting the bar of 120,000 pounds tensile strength. These features, when taken as an index of structural soundness in the metal, are of much value. They are also useful and may be taken advantage of to meet occasional overstrains. It must be remembered, however, that the display of appreciable elongation or contraction of area is not an invariable nor a necessary precursor to the rupture of even the most ductile metal, as it is found in the ordinary tensile test. Repeated alternate stresses of proper magnitude will eventually effect rupture in all grades of steel without the least display of ductility. The question of the proper use of these tensile values is quite distinct from that of how to impart them, but each should be taken into consideration in the preparation of specifications to govern the selection of steel for specific purposes.

The Zucker & Levett & Loeb Plating Apparatus.

A revolving automatic plating apparatus for plating with nickel, copper, zinc, brass or bronze which is claimed to do away with the necessity of buffing on some classes of work and to do work more rapidly than the ordinary

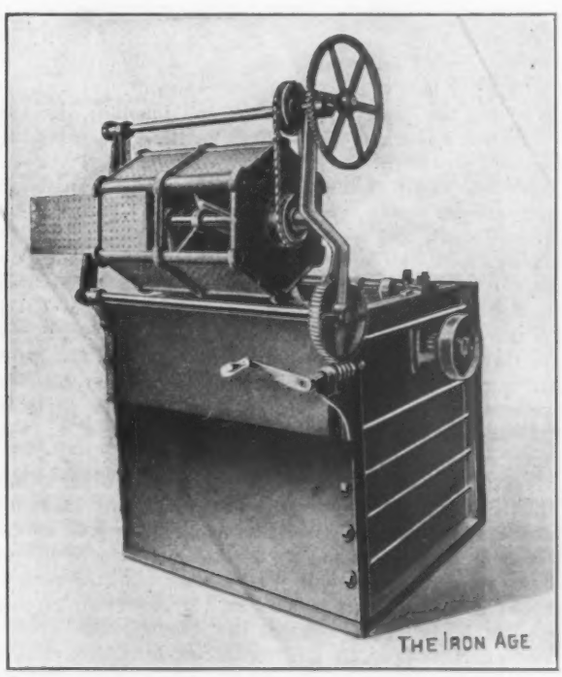


Fig. 1.—The Plating Apparatus Ready to Receive or Discharge Work.

plating tanks, has been brought out by the Zucker & Levett & Loeb Company, 526 West Twenty-fifth street, New York. The principal feature of the machine is a revolving hexagonal cylinder which contains the material to be plated. The cylinder can be raised or lowered into the tank in which it revolves by means of a hand crank shown in the illustrations. The crank, it will be noted in Fig. 1, operates a worm engaging a segmental worm wheel which is part of one of the arms on which the cylinder is held.

The construction of the cylinder can be varied to suit different classes of work. The sides of the hexagon are perforated slides, which can be made with holes of any size desired. The cylinder is 24 inches long by 8 inches in diameter. When the cylinder is in the tank its speed of rotation can be regulated to from two to four revolutions per minute.

The driving mechanism for the cylinder when in its lowered position can be seen in Fig. 2, and consists of a spur gear which meshes with a pinion on the driving pulley shaft. The spur gear is keyed on a shaft to which is attached a sprocket wheel connected by a chain with a

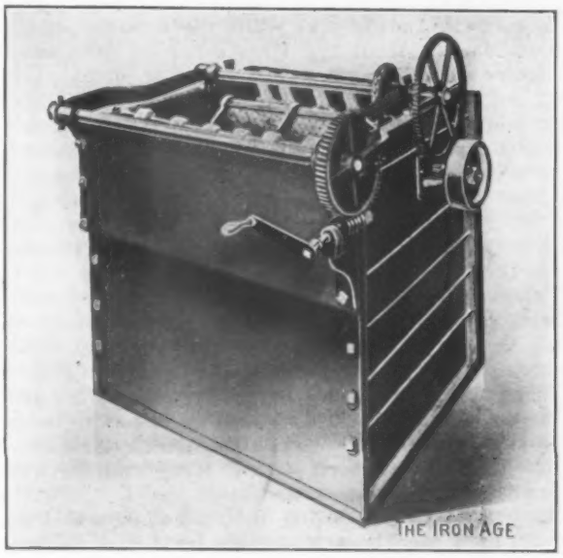


Fig. 2.—The Apparatus in Working Position.

sprocket attached to the cylinder shaft. A lever by which the speed of the cylinder is regulated is located in the rear of the tank above the driving pulley.

The tank, which holds 120 gallons of solution, is of wood and is substantially constructed and lined. Its inside dimensions are: Length 32 inches, width 32 inches and depth 36 inches. Semicircular cast zinc anodes with patent cast hooks are made to fit in the tank. The work does not require to be strung up or put in racks, but is simply deposited in the cylinder, and small articles, such as buckles, bolts, nuts, rivets, nails and the like are tumbled by the rotating action of the cylinder and are polished so that they do not require buffing.

Electro galvanizing, or cold galvanizing, is one of the processes that may be carried out with this equipment. The principal advantage is that a more uniform coating of zinc is deposited and there is less waste than in the hot galvanizing process where the articles are dipped in molten zinc. Electro galvanizing has been attempted many times with poor success, the difficulties being the obtaining of a solution of zinc that would yield a uniform coating of zinc without getting out of order, and the understanding of the proper electric current density and cleaning process. The company, after an extended investigation, believes it has solved the problem, and prepares a solution which is claimed to be as easy to operate and of about the same expense as the regular nickel solution and one that with ordinary care will not get out of order. Dynamos and all the supplies and materials necessary to equip a plant of any size are manufactured by the company.

A composition which will form a substitute for wooden ties, it is claimed, has been perfected by Jacob Laufer, Lima, Ohio. Any kind of refuse capable of being compressed into a solid mass under moderate pressure may form the basis of this composition. It is said to be somewhat similar to genuine wood and to possess the advantages of holding nails more firmly and of resisting the effects of water as effectively as concrete or stone. No appreciable effect is produced upon the substance when buried beneath the ground. For railroad ties and fence posts it is thought that this substitute will prove of much value.

Customs Contentions.

The Steel Cylinder Case.

After many weeks of investigation and the reception of a mass of testimony the Board of United States General Appraisers on April 18 handed down a decision in the so-called steel cylinder case. As the decision stands it is a victory for the Treasury Department, which has contended that long steel cylinders used for the storage of gas under pressure could not be deemed tubes within the meaning of that term as used in the tariff law. Two classes of merchandise were before the board for adjudication—namely, small and large cylinders. The small cylinders are used in the transportation of carbonic acid gas, and are about 4 feet in length and 8 inches in diameter, while the long cylinders range from 35 feet in length to 19 feet with respective diameters of 8 and 4 feet. The claim of the importer, the Liquid Carbonic Company of New York, which figures in the test case, is that all of the cylinders, irrespective of length or diameter, come within the tariff provision for tubes with duty at the rate of 35 per cent.

On the other hand, the Treasury Department, while granting the 35 per cent. rate to the short cylinders, insists that the larger articles shall be considered manufactures of metal, dutiable at 45 per cent. The Pintsch Illuminating Company, the Safety Car Heating & Lighting Company and Knauth, Nachod & Kuhne are understood to be much interested in the litigation, as all of them handle or use the cylinders. Many witnesses were examined by the Board of Appraisers, and I. F. Fischer, who writes the decision for the tribunal, says that the testimony is overwhelming that the trade in no instance buys or sells the large cylinders as tubes. It appears also that the Government witnesses were agreed that the smaller cylinders are not tubes, but, inasmuch as the Federal Circuit Court has granted this classification, Mr. Fischer does not feel at liberty to disturb the rating. There is little doubt that the whole matter will be carried into the courts and eventually be decided by the Supreme Court. With reference to the classification of the smaller cylinders the board says:

> The witnesses were unanimous and emphatic in their declaration that these gas holders are not tubes within the understanding of anybody, and that this pronouncement is in accord with ordinary usage of words is signally corroborated by evidence from the importers themselves, as exhibited by the bills of lading, entries and invoices, which all designate the goods as steel cylinders, and particularly by a copy of the protestants' own catalogue that was admitted in evidence, and which, throughout, invariably refers to the articles as drums or cylinders, never as tubes.

The decision then proceeds to consider the case of the large cylinders. It is pointed out that the articles in question have never been before the courts for determination, and therefore it would be unreasonable to adopt the suggestion made by the importers that the decision in the Downing case made by Judge Wheeler should be stretched to apply to the long cylinders. After referring to testimony given by an employee of the Safety Car Heating & Lighting Company, General Appraiser Fischer has this to say:

> We know of no authority, judicial, lexicographical or commercial, in support of the proposition that these enormous tanks, reservoirs, cylinders or gas holders, as they are variously termed, are dutiable properly under such a provision as paragraph 152, and not an atom of evidence was introduced by the importers' counsel to that effect. Throughout the examination of the importers' witness counsel for the importers never once referred to the articles in dispute as tubes, but always as tanks or reservoirs, as did also the witness. It is noted also, in this case as in the prior one, that the bill of lading, entry and invoice all describe the goods as steel cylinders, the suggestion that they are tubes being apparently of cisatlantic origin.
>
> It is clear to us that the testimony is in quantity overwhelming and in quality extremely satisfactory that in the trade which deals in tubes, tanks and cylinders these gas tanks are in no instance bought, sold or designated as tubes.

Nickel Plated Zinc Sheets.

The Board of United States General Appraisers in a decision rendered April 20 denied a claim filed by Ludwig Victor and others of New York regarding the customs classification of nickel plated zinc sheets, which Collector Stranahan had assessed as manufactures of metal with duty at 45 per cent. It was maintained by the importers that the merchandise came within the meaning of zinc in sheets, as used in paragraph 192, with duty at the rate of 2 cents per pound. The board, however, finds that the collector was correct in his assessment and his action is affirmed.

Bronze Powder Machines.

In a decision by I. F. Fischer the General Board on April 21 overruled a protest filed by Isaacs, Vought & Co., New York. It appears that the Custom House authorities demanded a 45 per cent. duty on bronze powder machines under the tariff provision for manufactures of metal. The importers maintained that the articles should be regarded as castings, with duty at the rate provided for such goods. According to the board, there was nothing submitted to the tribunal in support of the importers' contention.

An Automobile Engine Appraisement.

General Appraiser Fischer has affirmed the action of the Collector of Customs at New York in heavily advancing the invoice value of a 35 horse-power automobile engine from the Daimler Motor Company of Coventry. The engine was sent to this country to replace a broken engine. The engine was invoiced as possessing a foreign market value of $500, whereas Mr. Fischer approves the action of the collector in raising the price to $1250, an advance of 150 per cent. Unless the full board of three general appraisers materially modifies the single official's finding the engine will be seized by the Government.

Central American Notes.

SAN JOSÉ, C. A., April 14, 1906.—Next June, it is announced, the railroad across the Isthmus of Tehuantepec will be open for international traffic. This means that the Panama route will have to fight this new line, costing nearly $40,000,000, for the commercial carrying trade of the new world. Salina Cruz, on the Pacific, and Coatzacoalcos, on the Atlantic, will be the terminal ports. Goods from New York for Asia or western South America or even our own Pacific ports may find it advantageous to ship via the new route. Subsidiary lines of steamers are to be put on from Salina Cruz to Honolulu via San Diego, San Francisco and perhaps Seattle. From Coatzacoalcos a steamer line will connect with New Orleans and Galveston. This is the route which tried to commence international traffic some five or six years ago, but the railroad work had been done so badly that practical reconstruction at a cost of some $20,000,000 was begun, under the direction of Sir Wetmore Pearson, aided by a number of British and American engineers. Much of the new railroad stock, rails and bridges has come from the United States. It is probable that fully $5,000,000 will yet be spent in piers and warehouses at the two ports mentioned. For business with certain parts of Central America, Mexico, Guatemala, Honduras, &c., this route will be highly advantageous.

Ocos, Champerico, Sonsonati and several other points which suffered in the recent earthquake are gradually rebuilding. The new wharves and piers, as well as the warehouses, are now mostly of steel, experience having shown that this is the only way to withstand the terrible shocks with any show of success. If American capitalists can be induced to forget the damage done around Wasaya, Nicaragua, by the volcanic or seismic quakes, it is probable that much building will go on shortly in and around that section, which is certainly rich as a coffee producing center. Some of the mines near the Patuka can now be reached by the Cocos steamers, the work by the American company on that river including a large amount of dredging, the building of wharves, terminals, section houses and a number of miles of new railroad.

Some of the Honduras gold and silver mines have increased their output lately, especially the San Juan, Rosario and El Oro. Valuable iron and copper mines are said to have been discovered recently in the latter region. C.

A Birmingham, England, metal market review refers to an approach to famine conditions in aluminum. Early in April inquiries reached Birmingham from the United States for sheet aluminum, but it could not be obtained.

The Texas Tin Deposits.

WASHINGTON, D. C., April 24, 1906.—In view of the desirability of a domestic supply of tin in the United States, the United States Geological Survey recently commissioned G. B. Richardson to make an examination of the El Paso tin deposits of the Franklin Mountains of Texas. This region was reported upon by the survey in 1900, but considerable additional prospecting has since been done and Mr. Richardson has made an exhaustive study of the geology of the range and of the occurrence of the ore. Following is an advance abstract of this interesting report:

The Franklin Mountains are the southern extremity of the long, narrow range, known locally by different names, that extends southward from the Rocky Mountains east of the Rio Grande as far as El Paso. The Franklin Mountains are 23 miles in length, 15 of which are in Texas; average 3 miles in width and rise 3000 feet above the adjacent lowlands, culminating in North Franklin Peak, whose elevation is 7140 feet.

General Geology.

The rocks have been studied in detail only in the eastern part of the range in the area lying within the El Paso quadrangle. For the present purpose it will not be necessary to do more than outline the broader features of the general geology. The oldest rocks in the Franklin Mountains are of pre-Cambrian age and include two distinct formations. The lower one consists of about 1800 feet of light and dark quartzites and subordinate slates, which have been cut by a few thin diabase dikes. These rocks are succeeded by a bed of rhyolitic conglomerate, which attains in places a thickness of 400 feet, above which is a mass of prophyritic red rhyolite over 1000 feet thick. About 300 feet of indurated, fine textured sandstones carrying Upper Cambrian fossils overlie the rhyolite and contain rounded pebbles of the latter in the basal bed. The sandstone is succeeded by a considerable thickness, amounting to 5000 feet or more, of massive gray limestone, which lithologically is difficult to subdivide but paleontologically is separable into four main parts. These are referred to the Lower and Upper Ordovician, Silurian and Upper Carboniferous, the approximate thickness of limestone assigned to each division being, respectively, 1000, 400, 1000 and 3000 feet.

A considerable amount of granite occurs in the Franklin Mountains along the eastern base, chiefly associated with lines of faulting. The granite is a post-Paleozoic intrusion and is important as the rock in which the tin ore occurs. It is a medium to coarse textured variety, superficially reddish in color, and weathers readily to a coarse sand.

Occurrence of the Ore.

Prospecting has revealed the presence of tin ore in a small area in granite at the eastern base of the Franklin Mountains about 12 miles due north of El Paso, but not enough development has been done to make possible generalization of much value concerning its occurrence. The prospect lies adjacent to one of the main north-south faults. Here the displacement amounts approximately to 3000 feet, shown by the fact that the Silurian limestone which outcrops on the crest of the range occurs on low hills east of the prospect. The exact position of the fault plane is obscured by the granite, which is intrusive along it. There is also evidence of minor displacements. The joint planes present in the rocks throughout the range are here characteristically developed and the tin occurs as cassiterite, associated with quartz veins along the east-west joints in the granite. The joints along which the veins occur strike transversely to the trend of the range, and the veins dip perpendicularly or at right angles either northward or southward. The greatest distance that any of these veins has been traced along the surface is about 1000 feet, and one has been followed downward to a depth of about 50 feet.

The quartz is massive, white and of variable thickness, varying from a fraction of an inch to 2 feet, irregularly thickening and pinching out. Locally the walls of the vein are plane and the contact with the country rock is smooth. At other places the veins grade off into the granite. The mineralized zone at the greatest width measured is not over 6 feet thick. Sections across the zone show irregular veins of quartz in the granite, which is minutely seamed with joint cracks. Cassiterite occurs in the vein quartz and more abundantly immediately contiguous to it. More concentrated deposits of cassiterite occur intimately associated with the quartz and feldspar of the granite adjacent to the veins. Mineralization apparently occurs only contiguous to the veins and fades out a few inches from them. The cassiterite is present in crystals less than 1-10 inch in size, both twinned and in simple tetragonal forms, and it also occurs massive. Specimens of nearly pure cassiterite weighing several pounds are reported to have been obtained from this locality, but the area has been well picked over and at present, without further work, good specimens are difficult to find.

Development and Future.

The ore in the principal development of this property was discovered in 1899, and at the time of Weed's report in 1901 the three veins then known had been exposed for several hundred feet along their length and a few pits had been sunk, the deepest being 50 feet. Little work appears to have been done on these veins since then, although they have been much visited. In 1904 two small occurrences of tin ore associated with quartz were found about ½ mile apart, the farthest being between 1½ and 2 miles north of the old workings. These new occurrences are similar, but smaller than those first found.

Present developments do not warrant a prediction of the future of this field; it may or may not prove to be of considerable value. Some of the ore is of excellent quality and the chief question concerns its abundance. This can be determined only by further development and prospecting.

W. L. C.

Pacific Coast Trade with the Orient.

SAN FRANCISCO, CAL., April 14, 1906.—The exports from San Francisco to the Orient for the first three months of the year fell behind about $2,000,000 compared with those for the same time in 1905. This is the natural result of the cessation of the war between Russia and Japan and the fact that supplies for the latter belligerent were not needed any longer or in the same proportion as before. The falling off has been almost altogether with Japan and is principally in machinery, steel rails, plates and motors of various kinds. Of course this was to be expected, and the wonder is not that there should have been a falling off but that it should have been comparatively so light. With China there has been an increase and despite the boycott, real or supposed, principally in domestics. The exports of cotton to Japanese mills, as well as leather and shoes, &c., have fallen off heavily.

Up to the present the decline in one section of Japanese trade with us has not been made up by an increase in any other. It was supposed, and not without reason, that when the war was over the needs of the devastated country would be supplied from the United States and through the port of San Francisco; but if they have been supplied at all we derive no benefit therefrom. It was thought that there would be a large demand for mining machinery and mining supplies in Corea and Manchuria, especially as before the outbreak of hostilities matters had been promising in that direction and several of our hardware and iron houses had been laying the foundation for a good trade in mining machinery and supplies, but now we are apparently shut out altogether. The only article the export of which assumes large proportions is machinery, principally to Japan, but some steamers take a good deal to China and a fair proportion to Manila. The shipment of wire nails, which was practically put an end to during the war, has been resumed and considerable quantities are sent out by every steamer, principally, however, to China.

The large China steamers now take over $700,000 to $1,100,000 in value of merchandise at each trip. The Siberia, which cleared April 7, had a cargo valued at $770,343, most of which was for China. As far as regards iron and steel manufactures, these were the largest items of that description in that vast cargo. In nails there was an increase of about twofold from the quantity shipped on the Coptic, the predecessor of the Siberia, which

cleared March 31. The shipments of machinery to Australia have been increasing somewhat lately, principally mining machinery.

The Curacoa last week took out over $60,000 worth of hardware, &c., to various Mexican ports, and it is safe to say that close to 20 per cent. of the total value of the cargo was made up of wire, hardware and pipe

The weather continues excellent for crops and the hope is that the latter will mature without accident, the cereal crops particularly. We always fear rust or dessication by hot winds up to the last. Crops will be rather late this year. Damage is reported in some places to the fruit crop, but there is always a sufficiency of new bearing trees to make up for any shortage—that is, taking the crop as a whole and not particular varieties. J. O. L.

New Publications.

Panama to Patagonia: The Isthmian Canal and the West Coast Countries of South America. By Charles M. Pepper. Pages, 398; size, 8¾ x 5¾. Fifty full page illustrations and four maps. Cloth, $2.50 net. Published by A. C. McClurg & Co., Chicago.

The time has come for a book presenting industrial and commercial conditions in the South American countries, together with the possibilities of United States trade extension as opened up by the Panama Canal. There is not a little literature extant dealing with Central and South American peoples, cities, architecture, customs, scenery—all invested with a certain quality of romance, surviving from the days of Spanish conquest. Most that has been written has been on the theory that the civilization in the countries to the south retains and will continue indefinitely to retain the stamp put upon it some centuries ago, and that the day is not likely to come when the people of North America will have any direct contact with or interest in the life of the southern latitudes. Mr. Pepper set out with the idea that the building of the Panama Canal will have important consequences, especially affecting the trade relations of the United States with the countries on the west coast of South America. He has written his book with the thought that the recent works relating to the history of South America open the way for a volume dealing for the most part with industrial, fiscal and political information. He has subordinated the descriptive, yet has gone sufficiently into physical, institutional and social features to make clear the lines on which development will proceed under the quickening influences that are to be felt in the not remote future.

But the book is no recital of dry statistics, nor is it simply a matter-of-fact statement of commercial conditions. The author has a most engaging style, and no small addition is made to the value of the book by its literary quality. Mr. Pepper's opportunities for a study of the South American countries on the Pacific side were secured in his capacity as commissioner appointed by President Roosevelt, representing the permanent Pan-American Railway Committee. He rejects at the outset the assumption that the population of western Colombia and of Ecuador, Peru, Chile and Bolivia, approximately 11,000,000, is all that will be affected by the Panama Canal. The primary mistake in this view is in considering the coast Cordilleras as the principal mountain chain. In fact, the Andes, which in places are hundreds of miles across, are the great Continental Divide, with productive plains and fertile valleys on its western side. The mineral belt, only partly exploited in the centuries in which its wealth has been merely guessed at, must be developed by outlets toward the Pacific, and ultimately, the author believes, such railroads will be built, branching from a Pan-American trunk line. This latter he does not consider all a dream. He says it would have been as reasonable to imagine that the Rocky Mountains could always shut in the region between them and the Sierra Nevadas, barring all outlet to the Atlantic and the Gulf of Mexico, as to suppose that the Pacific Ocean from Panama south is everlastingly restricted to the fringe of coast for its commerce. In South America the real discussion in this connection is on the probable influence of the Panama Canal in diverting traffic from the Atlantic to the Pacific.

Chapter by chapter the book takes up the commercial status and possibilities of each of the west coast countries of South America, and the chance the United States will have of developing trade with them after the canal is built, when a new basis—an economic basis—will exist for the Monroe Doctrine. Some idea is given of the British, German and French investments in these countries. In the case of the United States the need of expanding the home market, which will be stronger in the future, will be an element in increasing the balance of trade already in our favor on the west coast. The author concludes that the geographical sphere of the canal includes the Amazon basins, the Argentine wheat plains and the Andes mines from Panama to Patagonia, and believes that with the solving of the political problems a new industrial life is unfolding, in which the people of the United States may have no small part.

Gas, Gasoline and Oil Engines. By Gardner D. Hiscox. Fifteenth edition; 8vo; cloth. Pages, 442. Illustrations, 351. Published by Norman W. Henley Publishing Company, New York. Price, $2.50 net.

The rapid advance made in the use of gas, gasoline and oil for the production of power makes necessary frequent revision of all literature pertaining to the subject. The author rightly observes that there is probably no more important mechanical industry involving the production of motive power than that of the explosive motor. More recently the progress made in adapting crude petroleum to power uses and concurrently the development of the gas producer have brought economies impossible in the early days of the gas engine. The blast furnace and the by-product coke oven, as is well known, have also made their contribution to the economies of gas power. The present edition represents a thorough revision of the author's previous work and the addition of considerable matter relating to the latest standards of construction and operation of the explosive motor. A chapter has been added on the production of the newer fuel gases and their uses. There is also a chapter on oil vapor motors. The author considers that crude petroleum has a growing field as a cheap power fuel where the erection of gas plants is not convenient. The chapter on "Producer Gas and Its Production" consists of 30 pages. Typical forms of producers are illustrated, the author selecting four or five producers among American designs, giving prominence to the suction gas producer. In the pages relating to gas driven engines employed for furnishing blast at iron furnaces, but one of the well-known European engines in this class is described.

An interesting feature of the work is a list of patents issued in the United States from 1875 to 1905, inclusive, for gas, gasoline and oil engines and their appliances. The list for the past five years shows what a flood of inventions has come upon the mechanical world in this line in more recent years. Of equal interest is a list of gas, gasoline and oil engine builders in the United States and Canada. This contains the names of 530 firms, and is an impressive exhibit of the proportions the explosive motor industry has attained. If criticism were to be passed on the book it would relate to some minor typographical and rhetorical errors, which sharper editing would have eliminated. The work is a valuable one and will find a wide field among gas engine owners and gas engineers.

The McGraw Publishing Company, publisher of the *Engineering Record, Street Railway Journal, Electrical World and Engineer* and other periodicals, has just placed a contract with Frank B. Gilbreth, New York, for the erection of a building on Twenty-ninth street between Seventh and Eighth avenues, New York. The plot is 126.4 feet long and 98.9 deep. It is planned to make this structure ten stories high, with the lower four floors devoted to printing machinery, the top floor to an engraving establishment and the remaining floors to offices. It is proposed to construct this building entirely of reinforced concrete. The building is designed by Professor Wm. H. Burr and Radcliffe & Kelley. W. S. Timmis will be in charge of the mechanical equipment of the printing offices.

PERSONAL.

L. F. Bower, formerly manager of the electrical works of the Allis-Chalmers Company in Cincinnati, has assumed the duties of comptroller of the company, to which position he was recently promoted, with headquarters at the general offices in Milwaukee. Mr. Bower's connection with the Allis-Chalmers Company dates from 1901, when the machinery department of the Dickson Mfg. Company, Scranton, Pa., manufacturer of locomotives and heavy machinery, of which he was secretary and treasurer, was absorbed by the Allis-Chalmers Company.

The degree of Doctor of Science was conferred upon James Gayley, first vice-president of the United States Steel Corporation, by the University of Pennsylvania last week. The honor was bestowed in recognition of Mr. Gayley's service in the advancement of the science of metallurgy.

Andrew Carnegie received the degree of Doctor of Laws from the University of Pennsylvania in connection with the Franklin bicentenary celebration at Philadelphia last week.

George Schuhmann, general manager of the Reading Iron Company, contributes an article on some of the fundamental facts connected with iron and steel manufacture to the April issue of the *Pilot*, a magazine for employees of the Reading Railroad, Reading Iron Company and United States Express Company.

W. F. Thornton, formerly manager of the Alabama iron mines of the Republic Iron & Steel Company, has been made general superintendent of the brown ore operations in the Birmingham district of both the Republic Company and the Tennessee Coal, Iron & Railroad Company.

W. M. Carr has resigned his position with the Goldschmidt Thermit Company of New York to become assistant to the president of the Commonwealth Steel Company, St. Louis, Mo. Mr. Carr's metallurgical experience has been largely in open hearth work.

W. W. Adams has resigned as secretary of the Electric Controller & Supply Company, Cleveland, Ohio, to become manager of agencies of the Ærocar Company, Detroit.

Don H. Bacon, who resigned recently as chairman of the Tennessee Coal, Iron & Railroad Company, will start on a tour of the world in May.

C. Frank Schwep has been appointed general purchasing agent of the Ingersoll-Rand Company, with headquarters at 11 Broadway, New York. Mr. Schwep has been at the head of the purchasing department of the Ingersoll-Sergeant Drill Company for the past 13 years, and was then located at the shops at Easton, Pa., and Phillipsburg, N. J.

Hollinshead W. Taylor of the N. & G. Taylor Company, Philadelphia, manufacturer of tin plate, has returned from an extended trip of several months through Mexico, California and the West.

W. H. Davey has resigned as general manager of the tin plate mills of the McClure Company at Washington, Pa., and has been succeeded by Robert Lewis.

W. T. Graham, president of the American Can Company, is expected to arrive in New York this week, having sailed from Liverpool on the Cedric.

H. L. Kaufman, vice-president of the Mary Charlotte Mining Company, of the Marquette range, has returned to Marquette, Mich., after a two months' absence in Europe.

A. E. Aeby, who has been connected with the New York office of the Pennsylvania Steel Company and the Maryland Steel Company for the past 18 years, has resigned his position as sales agent to become general manager of the Carbon Steel Company of Pittsburgh. Mr. Aeby's offices will be in the Havemeyer Building, 26 Cortlandt street, New York. John C. Jay, Jr., his assistant, will succeed him as New York sales agent, the appointment becoming effective May 1, 1906.

Warren Wilder, Jr., for the past seven years with the Allis-Chalmers Company, Milwaukee, has become connected with the Corliss department of the Mesta Machine Company, Pittsburgh, Pa., as assistant to Mr. Hamkens, who is in charge of that department. Since September, 1905, Mr. Wilder has been identified with the power department of the Allis-Chalmers Company, handling the estimating and correspondence work for large special engines.

John C. Neale, assistant manager of sales and structural engineer for the Carnegie Steel Company, left Pittsburgh April 24 for San Francisco, and will remain in that city for some time. Mr. Neale goes there to help reestablish the branch offices of the Carnegie Steel Company and incidentally to look after contracts for structural steel and other products that may come up when the rebuilding of San Francisco has started.

Arnold K. Reese, who several years ago went to Cardiff, Wales, to take charge of the blast furnace plant of Guest, Keen & Nettlefolds, Limited, and to introduce American blast furnace practice, has recently been appointed manager of the whole Cardiff Works, which includes four blast furnaces, one 40-ton acid Siemens-Martin furnace, one 160-ton Talbot continuous furnace and a ship and boiler plate mill.

The De Camp Brothers & Yule Iron, Coal & Coke Company announces the appointment of L. P. Mercer, Jr., as a member of the sales department at its Chicago office. Mr. Mercer joins the selling staff of this company May 1.

Copper Production Census Year 1904.

Through the courtesy of W. M. Steuart, chief statistician, we have received the following announcement by the Director of the United States Census of the result of the tabulation of the statistics of copper, smelting and refining for the calendar year 1904, forming a part of the census of manufactures of 1905, taken in conformity with the act of Congress of March 6, 1902. The figures indicate that there has been a substantial increase in the industry in the United States as compared with the statistics of 1900, which covered the fiscal year ending May 31.

The value of the products necessarily involves a considerable duplication, as the matte product of the smelters is handled by the refineries. There is included in the copper production a relatively small amount of copper exported in the form of matte. The copper product for the United States, 939,327,142 pounds, includes 91,743,719 pounds of copper produced from imported ores, matte and pig copper. The production of copper from mines located in the United States is therefore 847,583,423 pounds, or 378,385 gross tons, of which amount 205,189,233 pounds was lake copper. Comparative figures for 1905 and 1900 are shown in the following summary:

	1905.	1900.	Per cent. of increase.
Number of establishments	40	47	*14.9
Capital	$76,265,987	$53,063,395	43.7
Salaried officials, clerks, &c.:			
Number	809	488	65.8
Salaries	$1,527,382	$954,905	60.0
Wage earners:			
Average number	12,751	11,324	12.6
Wages	$10,827,043	$8,529,021	26.9
Miscellaneous expenses	$4,748,399	$1,522,325	211.9
Materials used: Total cost	$196,736,977	$122,174,129	61.0
Ores: Net tons	7,361,473	4,524,033	62.7
Cost	$60,402,094	$25,190,522	139.7
Matte, blister, mineral or cathodes purchased:			
Net tons	401,872	372,066	8.0
Cost	$115,383,933	$82,915,085	39.2
Fuel	$10,061,418	$5,615,465	79.2
All other materials	$10,889,522	$8,453,057	28.8
Gross value of products, smelters and refineries	$240,780,216	$165,131,670	45.8
Copper production, ingots, bars, wire, &c.:			
Pounds	939,327,142	602,595,113	55.9
Value	$119,860,923	$94,061,667	27.4

* Decrease.

It should be noted that the statistics for the smelters located in Michigan were taken in conjunction with the Michigan State manufacturing census and were for the year ending June 30, 1904. Hence the greater part of the lake copper production does not conform to the calendar year 1904.

THE IRON AGE

1855—1906.

New York, Thursday, April 26, 1906.

DAVID WILLIAMS COMPANY, ... PUBLISHER
CHARLES KIRCHHOFF, ... }
GEO. W. COPE, ... } EDITORS
A. I. FINDLEY, ... }
RICHARD R. WILLIAMS, ... HARDWARE EDITOR

The San Francisco Calamity.

The calamity which befell the State of California last week will go down in history as one of the greatest of its kind on record. There have been catastrophes which have involved far heavier loss of life, but it is altogether probable that the destruction of property in the same space of time has never before been exceeded. Not only San Francisco but many other cities and towns in California suffered heavy losses in the ruin of buildings and other improvements by the earthquake shock on April 18. The subsequent damage by fire in San Francisco, however, has been so enormous as to cause the serious injury done in other localities to receive relatively scant consideration, although they would in several instances have been sufficiently important to excite world-wide sympathy if any one had alone been stricken. It is estimated that the property loss in San Francisco will aggregate not less than $300,000,000, of which perhaps nine-tenths can be ascribed to the conflagration, which raged for nearly four days following the shock of earthquake. These figures far exceed the loss in the great Chicago fire in 1871, which had until last week the melancholy distinction of having been the greatest fire since the burning of Rome by Nero.

The San Francisco calamity has magnificently demonstrated the readiness with which the world responds to a sudden necessity for succor to a stricken community. It is doubtful whether ever before such large sums of money were contributed to relieve distress. The National Government, the States, the large corporations, business organizations, gatherings of citizens and individuals, both in this country and abroad, have not waited for an appeal from San Francisco, but spontaneously contributed to the relief of the destitute in the stricken city. If mere money could have instantly alleviated suffering it is certain that not a soul in San Francisco would have lacked the comforts of life even as early as the third day of the conflagration. It is such an occasion as this which serves to measure the width and depth and strength of human sympathy.

Now that the citizens of San Francisco are assured of adequate relief the question presents itself as to the effects of this great calamity on the business interests of the country. Values of stocks have been depressed, as is usual after any catastrophe involving the destruction of an enormous amount of property which will have to be replaced. It is always assumed that our accumulations of capital, which little more than suffice for the regular requirements of trade, must be heavily drawn upon to meet an extraordinary emergency, causing the rapid conversion of securities into immediately available funds. Insurance companies must be prepared to pay losses as soon as adjusters can pass upon claims. Merchants and manufacturers in the stricken city may not only be unable to meet their obligations to creditors, probably scattered all over the country, but must arrange for financial assistance to resume operations. Meanwhile outside creditors are not paid and their financial resources may be seriously impaired. All this means some derangement of the orderly course of finances and is necessarily taken into account by those who have anything to do with transactions in securities. The Chicago fire in 1871 was for this reason followed by a sharp fall in stocks. It was soon seen, however, that great as was that calamity it had not inflicted serious damage to financial interests generally, and it was further seen that important branches of business were greatly stimulated by the heavy demand coming from those who were rebuilding Chicago and re-establishing commercial and manufacturing facilities. Within a few weeks the Chicago fire had ceased to be a disturbing influence in security markets, and the following year, in spite of the fact that what was then described as an appalling destruction of property had occurred, the country experienced one of the greatest booms ever known. As over 34 years have passed since the Chicago fire, and the country has increased immeasurably in all forms of wealth, it may safely be assumed that the San Francisco calamity, gigantic as it is, can be much more easily borne. In this instance, as was the case with Chicago, foreign insurance companies carried heavy risks, so that a part of the burden of indemnifying property owners will fall on the world at large.

As to the rebuilding of the city of San Francisco on its present site there is no question. The work has already begun, even though timid souls are found who advocate the selection of some locality less liable to earthquake shocks. The climatic advantages of the peninsula, the magnificent harbor and the great transportation interests which have at vast expense made San Francisco their terminal, combine to make it impossible that those who have heretofore done business there will to any extent seek locations elsewhere. The frequency of earthquakes has not kept the city from growing, and the costly experience which has just been acquired will enable future danger from this source to be minimized. Anxious as the people of San Francisco may be to repair immediately the ravages of earthquake and fire, the work of rebuilding will be necessarily slow. The experience of both Chicago and Baltimore demonstrates this. However rapidly owners of property destroyed are desirous of rebuilding it will take time to adjust insurance and to arrange financial matters. The city authorities may also decide to take advantage of conditions and widen or vacate thoroughfares, which will consume time. The strain upon the country's finances will thus be less than if the work of rebuilding could be pushed actively by everybody. This will also cause the demand for building materials to be considerably less pressing than is now generally anticipated. Those who are expecting an immediate heavy business in steel structural material are likely to be disappointed in the quantity taken. The permanent business structures will undoubtedly be built of steel and concrete as a precaution against earthquakes and fires, but the steel trade may not be greatly stimulated in the coming 12 months by reason of the Pacific Coast consumption of this class of building material. It was expected that Baltimore would absorb a large tonnage of steel in rebuilding its burned section and estimates ran from 50,000 to 150,000 tons, but it is stated on the best authority that the total quantity of structural shapes used in that city since the fire there has not been over 30,000 tons. Hence, though the steel buildings of San Francisco proved themselves proof against destruction by earthquake, the quantity of steel used there may not by any means run into the hundreds of thousands of tons which are so generally accepted as certain to be demanded. The city will be rebuilt in time, and from the present ruins will grow a more beautiful and more sub-

stantial city than the one just destroyed, but it will not take many mills to supply the steel to be used in building construction there for the coming 12 months. It therefore seems wholly unnecessary for Congress to endeavor to facilitate the purchase of steel abroad by the removal of the duty on building material intended for use in San Francisco. The rehabilitation of the city, however, no matter what materials may be used, will necessarily for a long time greatly stimulate many branches of trade.

Connellsville Coke Values Steadily Appreciating.

Notwithstanding the rapid growth of the by-product coke industry and the unparalleled development of new coal acreage for coking purposes there is no halt in the enhancement of Connellsville coke values. Record pig iron production and increased foundry requirements have to some extent inflated coke prices during the past nine months, but aside from this abnormal condition the spread between pig iron and the fuel used in its production at most of the Northern furnaces is constantly declining.

The ratio of value between Bessemer pig iron at Mahoning and Shenango Valley stacks and furnace coke at the Connellsville ovens in 1906 coke contracts is on the basis of 1 to 7, as compared with 1 to 8 in 1905, and it is reliably stated that a still further reduction in the ratio in 1907 contracts to 1 to 6½ is contemplated. A comparison of coke prices on the present sliding scale with those on the basis of 1 to 8 is given below:

Selling price of Bessemer pig iron at Youngstown or Sharon.	Furnace coke at the ovens, basis of 1 to 7.	Furnace coke at the ovens, basis of 1 to 8.
$12.00	$1.71⅜	$1.50
13.00	1.85⅝	1.62½
14.00	2.00	1.75
15.00	2.14⅜	1.87½
16.00	2.28⅝	2.00
17.00	2.42⅞	2.12½
18.00	2.57⅛	2.25
19.00	2.71⅜	2.37½
20.00	2.85⅝	2.50
21.00	3.00	2.62½

While sliding scale coke contracts are of comparatively recent origin in the iron trade, statistics show a ratio between Bessemer pig iron and Connellsville coke in 1895 of approximately 1 to 10, and as the average coke price for that year covered foundry as well, the relation between the two can readily be estimated at 1 to 11. On the same basis the ratio was 1 to 8 in 1900, 1 to 9 in 1904, and 1 to 8 in 1905.

To the rapid rise in the cost of coal acreage and the comparatively limited Connellsville field the increased cost of coke is largely attributable, and as practically all of the known coke land in this region has been disposed of to operating companies, further development in southwestern Pennsylvania will lead to extensions in Greene and Washington counties. Parallel conditions led to the opening of the lower Connellsville or Klondike field, which adjoins what is known as the old or upper Connellsville basin, and the term is now commercially applied to its product as well. It is less than a decade since the original iron and steel consolidations which now make up the United States Steel Corporation, realizing the necessity of independence of fuel supply, turned to the Klondike region, being unable to acquire land in the upper Connellsville district. Much of the property was acquired at prices ranging from $300 to $500 an acre, and the recent sale of the largest remaining tract at $1750 an acre fairly represents present valuations. As there have been no recent transactions in coking properties in the upper region acreage values cannot be definitely stated, although it is understood that negotiations for a large developed property were recently discontinued when a price of $2500 an acre was fixed as the lowest basis on which a transfer would be considered.

American Tin Plates in Canada.

Attention has been called from time to time to the substitution of domestic tin plates for the foreign tin plates that have regularly been coming into the United States for the canning trade, to be re-exported under the 99 per cent. drawback provision of the tariff act. This displacement has been progressive and in recent months the decrease in tin plate imports has been marked. In December the amount imported was 3308 gross tons, against 5706 tons in December, 1904; in January, 1906, it was 3200 tons, against 7910 tons in January, 1905; in February, 2037 tons, compared with 5194 tons in February, 1905. For the three months the decline has been 10,265 tons, or nearly 55 per cent. The statistics are what might be expected in view of the large sales of tin plates made last fall by the American Sheet & Tin Plate Company for delivery on the Pacific Coast to the export canning trade.

Side by side with this reclamation of a domestic trade long given over to foreigners American producers of tin plates have pushed forward a campaign for the Canadian tin plate trade that appears to have been successful. That Welsh manufacturers are feeling the competition severely appears from recent comment in the British trade press. According to one South Wales correspondent fears are entertained that Wales will lose the bulk of its Canadian trade, which last year, it is stated, amounted to about 500,000 boxes. Welsh mills have been quoting prices for Canadian delivery in recent weeks which, based on current values for raw materials in South Wales, leave them without a profit, and in some cases even a loss, yet the bids of the American Tin Plate Company have been 6 pence a box lower. The result has been a steady increase in the share of the Canadian tin plate trade taken by the mills of the United States. The amount of these exports and their value last year and in the first two months of this year appears in the following:

Exports of Tin and Terne Plates from the United States by Principal Countries.

	1905.		January, 1906.		February, 1906.	
	Gross tons.	Value.	Gross tons.	Value.	Gross tons.	Value.
Dominion of Canada	7,311	$648,051	635	$56,210	836	$72,910
Japan	164	11,938	0	0	0	0
Other countries.	421	42,988	158	12,670	232	18,179
Totals	7,896	$702,977	793	$68,880	1,068	$91,089

Nearly half this Canadian trade in 1905 was with British Columbia and consisted of tin plates shipped to the canning industries of the Canadian Pacific Coast. These plates were largely exported as tin cans, and under a Canadian drawback similar to that of the United States the shippers received back 99 per cent. of the duty they had paid on the imported tin plates. How this trade with British Columbia has grown since the railroads in 1904 granted a rate of 30 cents a box on these shipments instead of 55 cents is shown in the table below:

Imports of Tin Plates Into British Columbia.

	From Great Britain.		From United States.		Total.
	Gross tons.	Per cent.	Gross tons.	Per cent.	Tons.
1902	5,367	99.3	37	0.7	5,404
1903	5,424	99.0	63	1.0	5,478
1904	942	64.0	543	36.0	1,485
1905	3,182	48.0	3,402	52.0	6,584

As told in another column of this issue, the United States courts have heavily penalized the Chicago, Burlington & Quincy Railroad, which made possible this extension of the American tin plate trade in British Columbia by

granting a concession from the regular freight to the British Columbian Pacific Coast. It may be true that the courts had no option, in view of the technical violation of the statute against rebates, but the size of the fines imposed indicates that there was no disposition on the part of the court to look with any degree of allowance upon the act of the railroad officials. Yet the special rate did not prefer one shipper at the expense of another. Its sole purpose was to make it possible to increase the export trade of the United States and, as was argued by the counsel for the railroad, was in a way comparable to the action of the Government in remitting practically all the duty to a manufacturer who seeks to extend his export trade in products from imported raw material. The course of the railroad in question seems to be parallel to that of Eastern roads which from time to time have made special rates from Pittsburgh to the seaboard on steel going abroad. The gravamen of the offense, in the view of the court, seems to have been in the secrecy of the rate, and yet in this particular case the publication of the special rate would no doubt have been the beginning of the end of the trade. As the case stands expiation has been made to the prevailing popular feeling on the rate question, and the Welsh tin plate manufacturer sees with satisfaction that one attack of the American invader bids fair to be repelled.

OBITUARY.

G. L. LEUTSCHER, well known among steel works' engineers throughout the country, died at Portland, Ore., March 31, 1906, after undergoing an operation for cancer of the stomach. He was born at Berne, Switzerland, and spent his early life in that country, receiving a university education. At the age of 21 he came to the United States, engaging actively in engineering work in the manufacture of open hearth steel. In this country he was connected with plants at St. Louis, Cleveland, Pittsburgh, Bridgeport, Conn., and in the South, and gained a reputation for thoroughness and ability. He was an occasional contributor to the columns of *The Iron Age* on subjects pertaining to open hearth practice. The appearance of the disease which resulted in his death compelled him to give up active business in the latter part of 1904, when he retired to a small farm near Portland, Ore., hoping that the climate and outdoor occupation would be beneficial. He is survived by a widow and a son 19 years of age.

HUGH I. MCCAFFREY, vice-president of the McCaffrey File Company, Philadelphia, died April 21 after a short illness from pneumonia, aged 39 years. After graduation from college, he entered the file making establishment of his father, advancing until he became vice-president of the company several years ago.

The annual meeting of the Worcester Metal Trades Association was held at the Automobile Club, Worcester, Mass., Tuesday evening, April 24. The following officers were elected: President, George M. Brooks, Harrington & Richardson Arms Company; first vice-president, E. M. Woodward, Woodward & Powell Planer Company; second vice-president, A. W. Whitcomb, Whitcomb & Blaisdell Machine Tool Company; treasurer, J. Philip Bird, Hobbs Mfg. Company; secretary, Milton C. Snyder, J. E. Snyder & Son; board of councilors, the officers and George I. Alden, Norton Emery Wheel Company; B. G. Luther, B. G. Luther & Co.; John R. Back, F. E. Reed Company; Albert E. Newton, Prentice Bros. Company. A banquet was enjoyed by 140 members and guests, including a number of prominent manufacturers from Boston and other New England cities. F. E. Reed, the retiring president, was the toastmaster, and the speakers were James A. Emery of the Citizens' Industrial Association of America and George B. Hugo, president of the Boston Employers' Association.

The Steel Corporation's Quarterly Statement.

The quarterly report of the United States Steel Corporation for the three months ended with March 31 shows net earnings of $36,634,490, an increase of $13,608,594 over the quarter ended March 31, 1905. With the exception of the second and third quarters in 1902, these are the largest three months' earnings in the history of the organization. The earnings for the second quarter in 1902 were $37,662,058, and for the third quarter $36,945,489.

The income account of the corporation for the past quarter is as follows:

January, 1906	$11,856,375	
February, 1906	10,958,275	
March, 1906	13,819,840	
Total net earnings after deducting ordinary repairs, renewals and maintenance, employees bonus funds, and subsidiary companies' interest		$36,634,490
Less appropriations for sinking funds, depreciation and reserve and special improvement funds		7,325,608
Balance of net earnings		$29,308,882
Deduct interest for quarter on United States Steel bonds	$5,741,671	
Sinking funds for quarter on United States Steel bonds	1,195,292	6,936,963
Balance		$22,371,919
Dividend for the quarter on preferred stock		6,304,919
Surplus for the quarter		$16,067,000
Less appropriated from surplus for expenditures made and to be made on authorized appropriations for additional property, construction and discharge of capital obligations		10,500,000
Balance of surplus for the quarter		$5,567,000

The total surplus at the close of the year ended Dec. 31 last was $78,598,710, which, with the surplus of the first quarter of 1906, makes a total of $84,165,710 at the present time.

Should the rate of the first quarter of 1906 be kept up for the entire year the total net earnings would be about $145,000,000, but as the second and third quarters are liable to prove even more profitable than the first, this being the general rule since the organization began business, the management confidently expects aggregate net earnings for the present year of $150,000,000.

Unfilled orders on hand at the end of March were 7,018,712 tons, as against 7,605,086 tons three months previously and 5,597,560 tons a year ago.

All the officers of the Steel Corporation were re-elected at the meeting of the directors April 24, as follows: Elbert H. Gary, chairman of the board; William E. Corey, president; James Gayley, first vice-president; William B. Dickson, second vice-president; Francis Lyne Stetson, general counsel; Richard Trimble, secretary and treasurer; William J. Filbert, comptroller.

The Buffalo Forge Company, Buffalo, N. Y., has closed contract with the Delaware & Hudson Company for the largest single forced draft equipment ever installed. The apparatus, which will go to the Olyphant colliery near Scranton, Pa., will eventually supply 14 boilers and consists of a three-quarter housing steel plate fan with 15-foot blast wheel direct connected to a plain slide valve heavy duty engine. This is the third unusually large forced draft outfit furnished to the Delaware & Hudson Company by the Buffalo Forge Company, the others being at the Plymouth No. 2 and No. 5 collieries. Good results have been obtained from these and other plants in the anthracite region, which are designed by the same manufacturer, for burning the very smallest sizes of anthracite coal, for which there is no outside market.

The Bessemer steel plant of the Republic Iron & Steel Company, at Youngstown, Ohio, has been running for some months on billets and sheet bars, and it is not likely that steel rails will be made again at this plant for some time. Some excellent records for output are being made and it is expected that the output of ingots for this month will exceed 50,000 tons.

San Francisco Buildings After the Disaster.

Steel Structures Resisted Earthquake and Fire—Some Plans for Reconstruction.

That the steel skeleton buildings of San Francisco have withstood both earthquake and fire to an extent that makes restoration to their former condition possible at comparatively small expense is the most important fact developed by the preliminary canvass of the situation. Early reports, coming while the work of destruction was still going on, were naturally the worst, and as the news has become more definite it has brought a steady diminution in the estimates of loss. With all the disposition apparent to leap over difficulties and to treat what must come by painful and protracted effort, as though it had already been accomplished, there is little reason to doubt the predictions that much of the burned district will be rebuilt better than it was eight days ago.

Favorable Reports from Steel Structures.

Nearly a week after the catastrophe important corporations were without any direct advices from their representatives in San Francisco as to the condition of their property, though telegrams of inquiry at one end of the line and of information at the other were written some days ago. This condition makes it possible to understand why only general statements can be made at this time concerning the extent and character of the construction work that is to be undertaken. It is known, however, that the prominent office buildings of the city are still standing. Possibly some of the reports sent in the past few days telling of slight damage may in turn require revision as more minute examination is made. But in general the experience at Baltimore in the fire of 1904 has been confirmed, and the result is highly creditable to the resisting power of the steel structure under test by fire. Since the later buildings erected in San Francisco were constructed in the knowledge that earthquakes of greater or less violence were to be expected it is not surprising that the calculations of their builders looking to that contingency have been for the most part equal to the test. When architects and engineers have made careful study of the effects of the disturbances on various classes of buildings light will be had that is not now available. It may be that reinforced concrete construction will be more common in San Francisco than it has been, in view of the loss of portions of stone and brick walls of steel skeleton buildings; but it is certain that the steel skeleton, with deep and firm anchorages in the earth, can be built so as to resist earthquakes—and in a number of cases in San Francisco has been especially adapted to meet such tests. It is not surprising therefore to read of the good shape in which specially constructed buildings have been found. In one case, the proposed Humboldt Bank Building, the dispatches state that it has been decided since the disaster of last week to proceed with the 20-story steel frame building, for which the contract was awarded some weeks ago. What further adaptations will be found necessary when all the data this horror furnishes are taken into account may prove to be more matters of detail than radical departures. The statement is made as coming from the officers of the bank that no change in their plans will be made. This doubtless means that the building project is not to be on any less scale than originally intended. A dispatch says in this connection: "It was found that steel buildings of brick and terra cotta construction stood the test of the earthquake and fire, and it is of this material that the bank building will be constructed."

Concrete Construction Advocated.

Another view of the form of construction that will find favor in the rebuilding of San Francisco is expressed by Frank B. Gilbreth, contractor, of 34 West Twenty-sixth street, New York, whose engineer, James McLaughlin, went from Seattle to San Francisco the day after the earthquake to examine into conditions as related to rebuilding. The latter advises that in his opinion concrete will be largely used in rebuilding. In connection with this prediction, Mr. Gilbreth says: "If it had not been for the susceptibility of the buildings to flames after the convulsion the greater part of the city would be standing to-day. Already Seattle has taken warning, and the Columbia Improvement Company, which is building a power house valued at $500,000, has changed its plans and will put up instead of a steel structure one of monolithic concrete construction. This, it is hoped, will withstand any ordinary earthquake shock, and will be absolutely fireproof."

In the view of some engineers the best construction for the future tall buildings in San Francisco would be a steel skeleton with reinformed concrete floors and partitions, the walls to be of brick or stone or preferably of concrete reinforced by twisted rods. Where low type buildings are decided on, a complete construction of reinforced concrete is considered a likely solution of the problems the earthquake and fire have thrust upon the city.

Prominent Office Buildings.

Though somewhat conflicting reports have appeared as to the condition of the leading office buildings in San Francisco, it is evident that the heat to which the steel structures were subjected was not sufficiently intense or long continued to weaken them. It is thought that only portions of the walls will need to be rebuilt in the case of some, while terra cotta filling will no doubt have to be replaced. The Call Building, the City of Paris, the Mutual Bank, the Claus Spreckels, Mills, Chamber of Commerce, Newman, Rialto, Kohl, Flood, Crocker-Woolworth, Crossley and Union Trust buildings are mentioned as in this category. One correspondent says: "Skyscrapers will be erected as before. There is no reason against their being erected, for all the really modern ones withstood both the earthquake and the fire. It would not be surprising to see the Palace Hotel fitted out as it was. It was not injured by the earthquake, and is so substantial that it even withstood dynamiting."

Of the buildings named above, the Merchants' Exchange probably suffered the heaviest loss. It cost millions, and it is said can be restored for $200,000 or $300,000. In the case of the Hayward Building at Montgomery and California streets, the damage is put at $5000 to $10,000. The Fairmont Hotel, a fine structure, which surmounts Nob Hill, was seriously damaged in the interior, particularly as to the first two stories. A $500,000 annex to the Fairmount, to contain the largest theater in San Francisco, is under contract. The James Flood Building, on Market and Powell streets, the most expensive building in the city, finished about a year ago, was built to resist earthquake shocks, and it did. It was but little damaged also by fire. The Rialto Building will need to be rebuilt only in its rear wall, the front and sides being intact.

The new Post Office Building, which cost $2,000,000, is virtually undamaged by fire. The earthquake shock did some damage to the entrances, but the walls are unaffected. The Mint suffered some roof damage, it is reported, but the walls appear to be firm.

The First San Francisco "Skyscraper."

According to private advices, the old Chronicle Building was destroyed in the earthquake. This was a nine-story structure, with a clock tower, and was erected in 1888. It was of wall bearing construction, the walls being reinforced with steel rails girding each floor. The floor beams were of steel. The walls were of brick and were unusually thick. It was the first building of the "skyscraper" type to be put up in San Francisco, and at the time of its construction was supposed to be proof against serious damage by earthquake, as it contained every practical feature of safeguard known at that time. Burnham & Root of Chicago were the architects and Theodore Starrett, now president of the Thompson-Starrett Company of New York, was chief engineer for the architects.

The new Chronicle Building, which was erected last year as an addition to the building described above, went

through the fire with but little damage. It is of steel skeleton construction.

George Simpson, chief engineer of the Thompson-Starrett Company, New York, left for San Francisco on Wednesday, April 25, to report on the condition of the steel buildings. Theodore Starrett, the president of the company, will go to the Coast in a week or ten days.

Humboldt Bank Building to Go Up at Once.

Milliken Brothers, 11 Broadway, New York, recently took the contract for the new Humboldt Bank Building in San Francisco, to be located on Market street near Fourth, but no work had been done. Press reports say that the directors met a few days ago and decided to go ahead as fast as possible with the work of construction. It was planned to be a 20-story building, requiring about 1500 tons of steel. A contract which Milliken Brothers recently completed was the erection of the Ruef Building, which was seven stories high. The Monadnock Building was a completed structure, for which Milliken Brothers had the contract for steel erection. The dispatches say that the back wall of this building, which was of brick, was destroyed by the earthquake, but the steel frame was left in good condition. The damage to this building will be repaired at once, and it will be ready for early occupancy.

Steel Corporation Offices and Plant.

The Carnegie Steel Company, the National Tube Company and the American Bridge Company maintained branch offices in the Union Trust Building, San Francisco, which was in the path of the fire. Its interior was burned out, all records being lost. Fortunately, however, all the sales managers escaped with their lives, although they lost their homes. The Carnegie Steel Company has opened temporary offices at 395 Thirty-fourth street, Oakland, Cal., care J. M. Gardiner, in charge of R. B. Carr, manager of sales for the Carnegie Steel Company, Illinois Steel Company and Lorain Steel Company. As soon as possible the Carnegie Steel Company will again establish branch offices in San Francisco in charge of Mr. Carr. The American Bridge Company has opened a temporary office at 2030 Scott street, San Francisco, in charge of F. H. Muse, contracting manager. The National Tube Company has opened temporary offices at 1011 Washington street, Oakland, Cal., in charge of Geo. S. Garritt, manager of sales, and T. W. Brooks, assistant manager. As soon as it can be done the branch office will be opened again in San Francisco. The American Steel & Wire Company had a wire plant on the west side of San Francisco Bay, at which wire was drawn from rods shipped from other mills. Wire cables were the chief product. This plant was not damaged to any considerable extent. The company also had a warehouse in San Francisco which escaped damage.

American Bridge Company Erection.

No erecting work was under way in San Francisco at the time of the earthquake, so far as the American Bridge Company is concerned. In recent weeks this company had taken the contracts for the Bank of California and the Title Insurance buildings, which together will take 2000 tons of steel. Shipments were also being made on a 3000-ton steel contract for the new Custom House building. The company has nearly completed the steel work on two cement plants on the Coast, requiring together about 3000 tons, and naturally the owners of these plants will now want to hurry them to completion. One is at Santa Cruz and the other in Solano County, on the bay, about 40 miles from San Francisco.

The American Bridge Company, and before its time some of its constituents, have erected a number of steel buildings in San Francisco, including the Merchants' Exchange, the Flood Building (1902) and a number of structures that were not named.

Union Iron Works Escapes.

The Bethlehem Steel Corporation had not received direct word from its Union Iron Works, San Francisco, up to Tuesday noon of this week. From Government sources at Washington it learns, however, that no material damage was done to its Pacific Coast plant. Some effects of the earthquake shock may need attention, but they are slight. The cruisers South Dakota, Milwaukee and California had been launched for some time, and work on them was near completion. At the Union Iron Works yard three vessels for the American-Hawaiian Company were on the ways, the construction of the Columbian and Mexican being quite well along, while work had only fairly started on the Isthmian. Prominent among vessels under repairs at this yard is the City of Puebla. While some slight damage may have been done at the Union plant resulting from the earthquake, it is considered to be only such as can be readily repaired.

One American Can Company Plant Destroyed.

The American Can Company, New York, had two plants in San Francisco. The one at Eighth and Townsend streets was in the burnt district and was totally destroyed. The loss is covered by insurance. At Lombard and Sansom streets, near the wharf, the company had a plant which was not greatly damaged. A machine shop of the company, formerly the Robbins Press Works, located in the district between the two can plants, was probably destroyed. The company's San Francisco offices were in the Kohl Building, a steel structure that still stands, though it was somewhat damaged. The Oakland, Cal., factory, which has not been in operation in some years, is in shape to be put in commission with slight repairs, and will be active in a short time. The output of this plant, with the increase in production from the large Portland, Ore., factory will, it is expected, take care of the San Francisco trade in the near future. Shipments will be made at once also from the Chicago district to San Francisco, as the Chicago works are already turning out product adapted to the Coast trade, so that there will not be any serious interruption to the Pacific Coast business so far as supplying the demand is concerned. Naturally consumption will be diminished somewhat for a time. It is the intention of the company to build a new and thoroughly modern plant to replace the one at Eighth and Townsend streets, which was on leased ground. The question of site is yet to be determined.

The Pelton Water Wheel Company's Loss.

A telegram to the effect that the San Francisco plant of the Pelton Water Wheel Company, near the heart of the city, was destroyed, is all the information that the company has received. It was said at the office of the company, 143 Liberty street, New York, that it had in course of construction a new plant 125 x 300 feet at Eighteenth and Harrison streets, San Francisco, but no information about it was contained in the message. The new structure was to have been put into commission about July 1, and if it has not been damaged it is probable that it will be ready before that time. The burned plant in the center of the city was a four-story brick structure, with a single story extension and was about 75 x 200 feet. The company is already getting material for rebuilding this plant. If the new building was also destroyed, the San Francisco business will be taken care of by the Philadelphia and Harrisburg plants until arrangements can be made for manufacturing in San Francisco.

The American Smelting & Refining Company maintained an office in San Francisco, but its plant is located at Vallejo Junction, some 50 miles from the city, and it was not damaged. All the office effects were lost.

The wire plant of the Pacific Steel & Wire Company, whose offices were at 100 Front street, San Francisco, is located at Oakland, Cal., and presumably escaped damage. The Risdon Iron & Locomotive Works were referred to in an early dispatch as partly destroyed. The same dispatch said that the Vista Gas Engine Company escaped damage.

It is stated that the National Fire Proofing Company, Pittsburgh, will build a large plant in California, and work on it will be rushed as fast as possible, in view of the expected heavy demand for fireproofing for new structures to be erected in San Francisco.

The branch establishment of E. C. Atkins & Co., saw manufacturers, Indianapolis, Ind., was in the district wrecked by earthquake and fire. R. W. Neighbor of Indianapolis is manager. The loss is estimated at $50,000. The warehouse carried a large stock, as San Francisco was the distributing point for the Pacific Coast.

NEWS OF THE WORKS.

Iron and Steel.

The Northwestern Iron Company, Milwaukee, Wis., is building a second blast furnace at Mayville, Wis. It will be 77 feet high, bosh 17 feet, hearth 11 feet and the capacity 300 tons of pig iron daily. The power plant consists of five engines made by the Allis-Chalmers Company, Milwaukee, three of which are high pressure and two low pressure. Steam will be supplied from 15 Stirling boilers having a total horse-power of 4000. The cast house, approximately 75 x 175 feet, will be equipped with pig handling and breaking machinery. The company has operated one furnace at Mayville for over 50 years and manufactures foundry and Bessemer pig iron.

A contract for 250 tons of chrome nickel steel has been recently placed with the Carpenter Steel Company, Reading, Pa., by the Pope Motor Car Company, to be used in the construction of Pope-Toledo automobiles at Toledo, Ohio.

By reason of the death of the president and chief owner of the Louisville Bolt & Iron Works, Louisville, Ky., the plant will be sold at auction on May 16 by the Fidelity & Trust Company of that city, if not sold before that date at private sale. It is located on 4½ acres on the main line of the Louisville & Nashville Railroad. The machinery is in good condition and the plant can be put in operation without delay. The equipment consists of 48 threading machines, 14 tapping machines, 10 hot pressed nut machines, 16 bolt forging machines for varied sizes of bolts, with heating furnaces, &c.; blacksmith shop and modern machine shop for repair work; 1 Belgian train with 12-inch roughing and 8-inch finishing train; 2 heating furnaces, each with waste heat boiler, with hot bed, finishing shears, separate engine, pumps, &c.; 1 20-inch muck train and engine; 8 bushelling furnaces, with waste heat boilers; 1 pair hot scales, muck shears, tools and other equipment. There is also 1 three-stand sheet mill. Power is furnished by 1 275 horse-power Hamilton Corliss engine for the bolt and nut department, 1 engine and dynamo, a battery of 2 Atlas Engine Company boilers and 1 Walton boiler, 1 Stillwell heater and all necessary shafting, pulleys, &c.

Haselton Furnace of the Republic Iron & Steel Company at Haselton, Ohio, has gone out of blast for repairs.

The Parryville Furnace, at Parryville, Pa., will be started after being relined, if the fuel conditions are favorable.

The Pennsylvania Steel Company has all of its furnaces in Dauphin County at work. One of the Steelton furnaces has been making a large production.

The tin plate plant at Middletown, Ind., bought by the American Tin Plate Company in 1898, has been dismantled and the buildings are being razed. The factory was established in 1894, and until its sale employed 400 men.

The Western Tin Plate & Sheet Company, Greencastle, Ind., has opened its sixth mill, putting the plant to its full capacity, with 400 employees. Three of the hot mills are used on tin plate, two on sheet and one on roughing work.

William B. Schiller, president of the National Tube Company, Pittsburgh, has denied officially that it is the intention of the company to dismantle its mills at Youngstown, Ohio, as reported.

The Pittsburgh Steel Company, Pittsburgh, maker of wire rods, plain and barb wire, wire nails and Pittsburgh perfect fencing, is operating its large mills at Monessen, Pa., and is having a very heavy demand for its products, particularly for its Pittsburgh brand of fencing. This fence is electrically welded and is meeting with much favor, demand for it from farmers and railroads being very heavy.

The Youngstown Sheet & Tube Company is preparing plans for a large office building, to be located adjacent to its new Bessemer steel plant at East Youngstown, Ohio. As soon as this new structure is completed the offices will be moved into it from their present location in Youngstown, and the operating and executive departments will be in close proximity to each other.

Alfred Merritt of Duluth, Minn., and associates have sold their iron properties in the State of Nevada and in San Bernardino County, Cal., to J. H. Moore of Seattle, Wash., and others who are interested in the recently organized Northwestern Iron & Steel Company, which intends to build a steel plant at Seattle. Walter Kennedy, Pittsburgh, Pa., is engineer in charge.

The Kemmerer Iron & Steel Company, Scranton, Pa., which recently purchased the South Side plant of the Lackawanna Steel Company, intended to use the three large stone buildings on the property for mill purposes, but found that they did not answer. The company is, therefore, building a mill 120 x 208 feet, and will use the old buildings for store room and other purposes.

The new furnace of the Chattanooga Iron & Coal Company, Chattanooga, Tenn., will be ready to blow in about April 25. The new furnace will be one of the most complete in the South, having a capacity of about 175 to 200 tons, instead of 150 tons, according to the original plans.

General Machinery.

Greenlee Brothers & Co., manufacturers of wood working machinery and tools, Rockford, Ill., are erecting a one-story shop addition 65 x 150 feet. All contracts for the construction of the building and for its equipment have been let. No power equipment purchases were necessary, as the company has a complete separate electrical power plant of sufficient capacity to provide for minor extensions.

The Citizens' Ice & Cold Storage Company, Toledo, has placed a contract with the Great Lakes Engineering Company of Detroit for a 100-ton artificial ice plant. The equipment will cost $50,000.

The Industrial Foundry & Machine Company, Knoxville, Tenn., is successor to the Knoxville Metal Mfg. Company. The company will occupy the old quarters of the Knoxville Car Wheel Shops on Jonesboro street, and will handle all kinds of machinery and conduct a general repair shop, making a specialty, however, of saw mill work.

The Hirsch Iron Company, Madison avenue, Cleveland, has purchased the plant of the Frasch Soda Company, this city, and will wreck the machinery, consisting of a 600 horse-power engine, six air compressors, ten pumps of various descriptions and several machine tools.

The E. C. Wehrfritz Machinery & Supply Company, Little Rock, Ark., is erecting a warehouse 300 feet in length. This building will be completed in about a month, and the company will then be in the market for piping, shafting, fittings, pulleys, traction and hoisting engines, &c.

The August Schubert Gear Company, Oneida, N. Y., is in the market for a new engine, boiler, all kinds of wood working machinery, shafting, belting, hangers, &c., for its new plant. The company would like to hear from parties who have second-hand machinery in good condition on hand.

The L. C. Roberts Mfg. Company, Fillmore, N. Y., manufacturer of concrete mixers, recently incorporated, is erecting a foundry 44 x 52 feet, and a machine shop 40 x 100 feet, two stories high. The machinery will be electrically operated by independent motors. The officers are William P. Brooks, president; Wilson Young, vice-president; Samuel G. McTarnachan, secretary; Carl J. Howden, treasurer, and Leonard C. Roberts, general superintendent.

Ground has been broken for the erection of the new machine shop of the Southern Pacific Railroad Company at Oakland, Cal., which is to be 195 x 493 feet, also a boiler shop 120 x 300 feet. The improvements which the company is making at that point are estimated to cost about $365,000. The company is also planning extensive improvements at Sacramento, Cal.

The Houchin Company, Atlanta, Ga., manufacturer of die presses, dies and special machinery, has recently installed a Jones & Lamson 24-inch turret lathe.

The C. O. Bartlett & Snow Company, Cleveland, Ohio, reports the following recent sales: Omaha Paint, Pottery & Tile Company, Omaha, Neb., dryer for drying coal, also complete outfit for manufacturing paint; J. Shallcross & Son, Coatesville, Pa., Triumph steam dryer; Iola Portland Cement Company, Dallas, Texas, elevating machinery; United Iron Works Company, Springfield, Mo., Triumph steam dryer; New Castle Portland Cement Company, New Castle, Pa., conveying machinery; Coplay Cement Mfg. Company, Philadelphia, Pa., large style C compartment direct heat dryer for drying 30 tons of material an hour; Grasselli Chemical Company, New Jersey works, elevating machinery; Canadian Copper Company, Copper Cliff, Ont., No. 4 direct heat rotary dryer; Owen Sound Portland Cement Company, Shallow Lake, Ont., style C direct heat dryer for drying 100 tons of coal a day; War Eagle Coal Company, War Eagle, W. Va., coal handling machinery; Valentine Elcoro & Co., Mexico City, mining machinery; Louis Metal & Iron Company, Piqua, Ohio, Triumph steam dryer.

The Downie Wright Mfg. Company, York, Neb., has completed arrangements for removing its plant to Rapid City, S. D., where a new plant, to include a foundry, machine shop, machinery warehouse and office building, is to be erected. The company manufactures mining and milling machinery.

The A. P. Dienst Company, recently incorporated, has taken over the plant and business of the firm of A. P. Dienst & Co., New York, and will continue the manufacturing, buying, selling and installing of boilers, engines, machinery, mill and factory supplies, tools, etc. The office and shops are at Third avenue and 140th street. A. P. Dienst is president, E. H. Dienst, secretary, and J. C. Heintz, treasurer.

Friedenwald Brothers, Baltimore, Md., are to erect a two-story machine shop on North street. The building will cost about $13,000.

Power Plant Equipment.

The Milwaukee Northern Railway Company, Port Washington, Wis., will build a power station of 4000 horse-power. The company will construct an interurban line 112 miles in length.

The Cleveland, Painesville & Ashtabula Railway Company, Painesville, Ohio, has placed a contract with the Arbuckle-Ryan Company of Toledo for two large boilers and additional pumps.

The Louisville Lighting Company, Louisville, Ky., is making extensions to its lighting plant which include the erection of a new building and the installation of new turbines with an ulti-

mate capacity of 20,000 kw., as well as boilers. Contracts have been placed with the Westinghouse Electric & Mfg. Company for Parsons steam turbines and with the Stirling Consolidated Boiler Company for the boilers.

The Rathbun-Lacy Company, Toledo, has leased a large building on the river front in that city, where it will manufacture two and four cycle gas engines from 2 to 100 horsepower, and it will also do all kinds of marine repair work.

Improvements which will increase its output 25 per cent. are under way at the plant of the Buckeye Engine Company, Salem, Ohio. The extensions include 15,600 square feet of floor space to the machine shop and 3200 square feet to the blacksmith and forge shops. Orders for the tools required, including heavy planers, lathes, automatic tools, forges, &c., have been placed. The building will be of reinforced concrete construction, with concrete roof.

Edgar B. Kay of the University of Alabama, Tuscaloosa, Ala., is preparing plans for a water power plant at Albertville, Ala., to cost about $40,000. Bids for work of construction will probably be received about July 1. Mr. Kay has been commissioned by the special water committee of the city of Birmingham, Ala., to make investigation of the most feasible plan to supply the manufacturing industries in the Birmingham district with a minimum of 100,000,000 gallons daily of free water and to prepare the necessary plans for canals, &c. The surveys will include not only the local water sheds, but will extend to the Coosa and Tennessee rivers.

The Boyts, Porter Company, owner of the Yough Pump Works at Connellsville, Pa., recently made a large shipment of pumps to the Fort Wayne & Wabash Valley Traction Company, Fort Wayne, Ind. The pumps are among the largest ever built by the company, four of them being 20 x 36 x 48 inch with 24-inch suction, having 12-inch discharge openings. The daily capacity of each pump is 7,632,000 gallons, or for all pumps 30,528,000 gallons. There were also two 12 x 20 x 30 inch circulating pumps with 16-inch suction and 12-inch discharge, with a daily capacity of 4,700,160 gallons, and two 20 x 12 x 30 inch special double plunger boiler feed pumps, with a capacity of each pump to feed 4700 horse-power boilers, or both pumps capacity for 9400 horse-power boilers.

The American & British Mfg. Company, Providence, R. I., has its new Wilkinson turbine in operation in its Corliss engine shops, and has plans under way for organizing a new company to handle the turbines for the market. It is likely that additions will be built to the plant later on for taking care of this new department.

The Dayton Globe Iron Works, Dayton, Ohio, has secured an order from the Janesville Electric Company, Janesville, Wis., for two 250 horse-power turbines.

The Seattle-Tacoma Power Company, Seattle, Wash., is making preparations to erect a new power station, which will take care of extensions being made to lines which it operates.

The Hutchinson Interurban Railway Company, Hutchinson, Kan., will build a new power station and has purchased two direct connected cross compound Reynolds Corliss engines, one of 230 kw. and one of 300 kw.; Parker boilers, and cars made by the American Car & Foundry Company.

The C. P. & J. Lauson Company, manufacturer of gas and gasoline engines, has been incorporated at Milwaukee, with a capital stock of $75,000. The corporation succeeds the long established business partnership of C. P. & J. Lauson. Its engines are well known under the title of "Badger" gas and gasoline engines. The incorporators are C. P., J. and A. H. Lauson.

The Westinghouse Machine Company, East Pittsburgh, Pa., has recently contracted with the Olean Street Railway Company to install in its power house at Ceres, N. Y., two gas engines for supplying current to the Olean Street Railway, serving Olean, Ceres, Bolivar and other towns. The engines are to be of the Westinghouse horizontal heavy duty double acting type, with single cranks and cylinders 22 inches in diameter by 30-inch stroke. They will operate on natural gas, which is very plentiful in that territory. The engines are to drive 300 kw. 25-cycle alternating current generators. At present the Olean Street Railway Company has a steam power plant in service, burning gas under boilers, and a large saving is contemplated in using gas power.

The National Carbon Company, Cleveland, Ohio, has for some time operated gas engines of different makes up to 200 horse-power in its various factories. The company is now installing in its works at Clarksburg, W. Va., a 600 brake horse-power Koerting gas engine supplied by the De La Vergne Machine Company, New York. The engine will be used for general power purposes and will operate on natural gas. The Baldwin Locomotive Works, which recently ordered 26 125 horse-power Hornsby-Akroyd oil engines, has just placed an order for six more of these engines of the same size, or a total of 32 engines, some of which will be coupled together and run direct connected to electric generators, making 250 horse-power units aggregating 4000 horse-power. This will be the largest oil engine installation ever made.

Foundries.

A. F. Bartlett & Co., Saginaw, Mich., are erecting an addition to their foundry 50 x 55 feet, which will be equipped with molding machines. The firm is installing some Tabor, Adams and Pridmore machines, increasing its capacity about 40 per cent.

The Missouri Malleable Iron Company, East St. Louis, Ill., has materially added to its annealing capacity by tearing down eight of the small annealing ovens and replacing them with large ones. This also necessitated increasing the producer capacity, for which purpose the company has had installed two Duff's patent water seal gas producers. With these additions a capacity is provided of about 1800 tons of malleable iron per month, and the company is operating its works to full capacity.

The Zanesville Malleable Company, Zanesville, Ohio, is contemplating making additions to its plant during the summer, but definite information in regard to the extent and character of the improvements is not yet available.

The Gardner Governor Company, Quincy, Ill., is building a foundry at La Grange, Mo., the dimensions of which will be 90 x 240 feet. Equipment has been secured for installation in this building.

The Belle City Malleable Iron Company, Racine, Wis., has just completed extensions to its foundry and annealing room which will double the capacity of these departments and provide for an annual output of 10,000 tons. The company states that it is now producing castings at the above rate.

The Grey Iron Foundry Company has taken out a permit to erect a 28 x 40 foot addition to its plant at Reading, Pa.

The Marion Malleable Iron Company, Marion, Ind., has contracted with the Commercial Club of that city, in return for a bonus of $20,000, to double the size of its plant, which will increase the number of workmen to 600.

The Cedar Falls Iron Works, Cedar Falls, Iowa, has been incorporated with a capital stock of $25,000, of which $20,000 has been paid in. The general nature of the business of the corporation will be the conducting of a foundry and machine shop and doing structural iron work. H. E. Olbrich and H. H. Clay are interested in the enterprise.

The business and plant originally started by the late William McFarland, Trenton, N. J., has been purchased by the McFarland Foundry & Machine Company, which was recently incorporated. The new company will continue the manufacture of gray iron machinery castings, cast chilled wire drawing dies, and will take up in addition the manufacture of patterns, experimental machinery, &c. It is the intention to make some extensive additions to the foundry and machine shop, plans for which have not yet been prepared. James J. Wilson is president; F. M. Staples, secretary, and Louis C. Taylor, treasurer.

C. F. Spinney and Frank F. Baugher, York, Pa., have organized the Pennsylvania Foundry Company, and have their plant ready for the manufacture of iron castings up to 600 or 700 pounds and patterns in wood and metal. A building 40 x 100 feet has been secured and remodeled for foundry purposes, and a pattern shop, core shop, planing sheds and sand sheds have been added. Mr. Spinney has been connected with the Maryland Steel Company as engineer, the Norway Iron & Steel Company as general manager, and is a civil engineer of experience in all classes of construction. Mr. Baugher is a pattern maker and foundryman with long experience.

Bridges and Buildings.

The recent fire in the plant of the Virginia Bridge & Iron Company, Roanoke, Va., did but little damage to the structural shop, and the company has made temporary repairs and is enabled to resume operations to full capacity. The company is now designing a new modern steel fireproof shop, which it will manufacture and erect itself. In the meantime the company is able to take care of all orders promptly and is running both its Roanoke and Burlington shops to full capacity.

The Mansfield Engineering Company, Mansfield, Ohio, is increasing its facilities materially for the handling of structural and plate work by the installation of a pneumatic riveter to close up to 1⅛-inch rivets, multiple punch and shear 72 inches between housings, plate bending rolls 6 feet between housings and by the erection of a new heating furnace for its blacksmith department.

Contracts have been placed for the building and equipping of the 15-story Ohio Building at Toledo. The Toledo-Massillon Bridge Company will supply the structural steel; Toledo Boiler Company will install three 150 horse-power boilers; Watertown Engine Company, Watertown, N. Y., will install three 100 horse-power engines; General Electric Company, three generators; Haughton Elevator & Machine Company, Toledo, one freight elevator; Standard Plunge Elevator Company, Worcester, Mass., four passenger elevators; Detroit Automatic Stoker Company, Detroit, stokers and smoke consumers; Ingersoll-Sargeant Drill Company, Easton, Pa., air compressers, and the Heisler Pump Company, St. Marys, Ohio, the high duty elevator pumps.

The Michigan City Board of Public Works has decided to construct a rolling lift bridge across the harbor at Franklin street. H. M. Miles, City Engineer, Michigan City, Ind.

The Miller-Collins Company, contracting engineers, 29 Broadway, New York, has been awarded the general contract covering foundations, structural steel, masonry, roofing work, &c., for the new boiler house and coal bins, &c., to be erected at Elizabethport, N. J., for the Central Railroad of New Jersey.

The Lafayette Engineering Company, Lafayette, Ind., has been awarded the contract for constructing a steel bridge over the Wabash River at Cayuga, Ind.

The Pennsylvania Railroad Company has awarded a large tonnage of structural steel work to Wm. B. Scaife & Sons Company, Pittsburgh, Pa., in connection with the improvements and new station under way at East Pittsburgh, Pa.

The Pennsylvania Steel Company has the contract to build a bridge for the Vandalia Railroad over White River at Indianapolis, Ind. It will be 540 feet long, with seven spans.

Fires.

The toy factory of the Mason Mfg. Company, South Paris, Maine, was destroyed by fire, April 20.

The machine shop, pattern shop and cupola building of the T. H. Symington Company, manufacturer of railroad machinery, at Corning, N. Y., were destroyed by fire April 19.

The central power house of the Shenango Power & Traction Company, Oil City, Pa., were destroyed by fire April 22. The loss is placed at $300,000.

The machine shop of the Chicoutimi Pulp Company, Chicoutimi, Quebec, was destroyed by fire April 20. The loss is placed at $25,000.

The machine shop of the Robert Rom Company, manufacturer of plumbers' supplies, at Milwaukee, Wis., was damaged by fire Friday, April 20. Loss is estimated at $20,000.

The plant of the Vilter Mfg. Company, Milwaukee, Wis., manufacturer of Corliss engines and refrigerating and ice making machinery, was badly damaged by fire early Saturday morning, April 21. The loss includes the destruction of patterns, the offices and the machine shop, and is estimated at between $50,000 and $75,000.

Hardware.

The Austin Mfg. Company, Hartford, Conn., has reorganized and incorporated under Connecticut laws, with a capital stock of $50,000 and these officers: President, R. M. Austin; treasurer, E. S. Goodrich; secretary, J. A. Goodrich. The company will continue to manufacture the Austin oven and roaster. The present plant will be extended to provide necessary additional manufacturing space.

The Hoggson & Pettis Mfg. Company, New Haven, Conn., manufacturer of the Sweetland chuck, machinists' tools, &c., is moving to new quarters on Park street. The removal was made necessary by the sale of the old works to the New York, New Haven & Hartford Railroad. The company will reduce its capital stock from $80,000 to $40,000.

The E. W. Seaver Company, West Townsend, Mass., has sold its wooden ware business to the Eastern Mfg. Company, Winchendon, Mass.

The Glidden Varnish Company, Cleveland, Ohio, has completed plans for a new plant to cost $200,000. A power plant is included in the contemplated improvements.

The Chesapeake Nail Works, Harrisburg, Pa., are undergoing extensive repairs, including improvements to the engine. The works will probably start next month.

The Birmingham Metal Bed Mfg. Company has been incorporated with a capital stock of $50,000 at Birmingham, Ala. The officers of the company are Frank Nelson, Jr., president; Dr. L. G. Woodson, vice-president; Dr. F. I. Tarrant, secretary-treasurer. The Board of Directors is made up of the officers and K. A. Conville, T. H. Molton, Culpepper Exum, John H. Adams, E. M. Tutwiler and C. M. Green. A plant will be erected, equipment for which has already been purchased, and the company expects to begin the manufacture of its line of metal beds about the first of August.

The National Mfg. Company, with office at 228 Arcade, Cleveland, Ohio, has been formed by F. L. Feich, president; P. E. Neilson, vice-president; I. E. Weel, secretary, and G. S. Seal, treasurer. The company will establish a factory at Winter and Eugene streets, Cleveland, where it will manufacture a combined spring catch and hasp lock, a hinged hasp and lock for tool boxes, and several other hardware specialties stamped from sheet metal.

The Geo. W. Pitkin Company, maker of paints and colors, Chicago, whose plant was recently partially destroyed by fire, will rebuild at an early date. In the meantime a temporary location has been secured, where manufacturing operations will be conducted until the new building is in shape. Power and machinery requirements have not yet been decided upon, with the exception of a number of mills which have been purchased from the Chas. Kaestner Company, Chicago.

The Racine Wire & Iron Works Company, Racine, Wis., has been incorporated by George L. Buck, John P. Hochguertel and Chas. W. Peck, the capital stock being $10,000. This business was established by Chas. Goehmr in 1869. More capital has been added, with the intention of increasing the output of the factory, which consists of brass and copper wire cloth used largely by breweries, as well as all kinds of window guards, ornamental work for offices and iron fences.

The Reinke & Shirray Mfg. Company, Detroit, Mich., is having a new factory erected on Lafayette boulevard, between Tenth street and the Michigan Central Railway tracks. This company started in business in a small way in the manufacture of sheet metal stampings, locks and hinges and special parts for automobiles and kindred lines, and has developed a trade which makes the provision of larger quarters necessary.

Miscellaneous.

The Hartford Cornice Works has been incorporated in Connecticut as the Hartford Cornice Works, Inc., with capital stock of $10,000. The incorporators are Wilbur S. Steele and Ray C. Arnold, Hartford, and Walter H. Arnold, Bristol, Conn. Ray C. Arnold has entered the business after successful experience as superintendent of the works of a large New York sheet metal establishment.

The Pittsburgh Valve & Fittings Company, Pittsburgh, Pa., has placed contract with the McClintic-Marshall Construction Company for the addition to its plant at Barberton, Ohio.

The Garrett Trolley Wheel Company, Garrett, Ind., has been incorporated to manufacture trolley wheels by John B. Mager, John Trapp and Adam Trapp.

The Indiana Steel Plant.

Detailed plans of the mammoth steel plant that the United States Steel Corporation is building in Indiana on the shores of Lake Michigan were laid before the directors of the company at the regular quarterly meeting of the board. The new plant, which is to cost $75,000,000, is to be built by the Indiana Steel Company, a subsidiary organization of the United States Steel Corporation, formed for the purpose of carrying out the company's plans for this new steel plant, which will be the largest and the best equipped of its kind in the world. The plant is being built primarily to serve the Western market, but it is so located that its product can be marketed advantageously in the East as well as in the West.

The furnaces, rolling mills and other parts of the plant itself will cover a square mile, and in addition the company owns thousands of acres which will be used for a town site, for vast railroad yards and for other facilities needed to insure the effective operation of this gigantic plant. After the meeting of the directors Judge Gary, after whom the town which is to be built up around this new steel plant is to be named, announced some portion of the company's plans.

The plant will consist ultimately of 16 blast furnaces and 84 open hearth furnaces. For the present the work of building four blast furnaces and 24 open hearth furnaces will be taken in hand.

There will be six finishing mills. The first to be built is to be the steel rail plant, which is to have a capacity of about 75,000 tons per month. This will be followed by a bar mill, a structural mill and finally by plate mills. It is probable that a large new bridge works will be added.

The iron ore which will be required by the plant will be brought down from the company's mines in the Lake Superior region and will be brought in to docks on the lake front immediately adjoining the company's blast furnaces, which form the first division of the Indiana plant. The coal for steam purposes will be brought from the Indiana mines of the Deering Coal Company, with which the Steel Corporation has a 50-year contract, and the coking coal from the Pocahontas coal fields in West Virginia. Experiments are now being made to determine the best type of coke oven for the purpose.

In addition to the Elgin, Joliet & Eastern and the other railroads owned by the Steel Corporation, the new plant will be served by four great railroad systems—the Pennsylvania, the New York Central, the Baltimore & Ohio and the Wabash. The Erie also passes within easy connection of the new plant. The Steel Corporation will own vast railroad yards to the west of the plant, which will be connected with all these railroad systems.

The Lake Shore & Michigan Southern of the New York Central system, the Baltimore & Ohio and the Wabash are engaged in altering their lines in the neighborhood of the new plant so as to avoid all grade crossings and to make them fit in better with the Steel Corporation's scheme of construction.

The town of Gary, which primarily will be the dwelling place of the men employed in the new plant, is expected by the officers of the Steel Corporation within four or five years to have a population of fully 100,000 people. The town is to be constructed as a model one, but the officers of the Steel Corporation say that no use will be made of fads.

The Iron and Metal Trades

The San Francisco disaster has had a rather disturbing effect upon the broader minded leaders of the Iron industry who are concerned chiefly with its influence upon the general financial situation. The splendid vindication of the modern Steel cage construction is exceedingly gratifying, but some very erroneous and exaggerated statements have gained currency as to the tonnage of Shapes which will be required at once. Data collected by the highest authority show that up to date from the time of the fire, Baltimore used 30,000 tons of Steel for the reconstruction of its burned area. It always takes time to rebuild, and the somewhat hysterical fears that the mills of this country, busy as they are now, could not cover the demand, are utterly unjustified. The quantity will not be large, relatively speaking, and the deliveries needed will be spread over so long a time that the work will make only a passing impression upon the structural mills. Those who believe that the Pacific Coast disaster will mean a boom to the Steel industry are as much mistaken as are those who hold that our own works cannot take care of the business as and when offered.

The event of the week has been the announcement just made by the United States Steel Corporation, the Lackawanna Steel Company and the Pennsylvania Steel Company that they have opened their books for orders for Steel Rails on the basis of $28 at mill. We are not advised whether the other rail mills will pursue the same course.

Officials of the United States Steel Corporation have authorized the following statement: The subsidiary companies of the United States Steel Corporation have been considering the question of prices for standard Rails for 1907. The orders already booked are sufficient to keep the mills fully employed to the end of 1906 or later, and many of the railroad companies are desirous of placing orders for next year. The demand is so great that it has been suggested the price can be advanced, and there are some good reasons in favor of an increase. Although it is believed the Rails which are now being produced by the Rail makers generally of this country are the best in the world, both as to composition and method of manufacture, still it is felt the price of $28 per ton is a fair price under existing conditions, and that is the price fixed for 1907 by the companies above referred to.

The Pig Iron markets are in a somewhat puzzling condition, due partly to the fact that influences bearing upon them vary in different parts of the country and in different branches of the industry. Steel making Irons are generally firm. In the Central West a sale of 20,000 tons of Bessemer has been made for an Eastern works. In the Chicago district the Malleable foundries are in the market to cover their contracts with the implement makers, the tonnage in sight being 20,000 tons. Car builders there, too, have been buying, and Steel foundries are in the market for Basic Pig. In the East a leading interest is feeling the market for a large block of Basic Pig for the third quarter.

A block of 10,000 tons of Virginia Basic has been sold to an Eastern Plate mill. Other Eastern Steel works have bought smaller quantities, and there are other inquiries in the market, including one of 5000 tons for a Steel foundry.

In Foundry Irons the market is not in as good a position. There is keen rivalry in spots, with corresponding concessions on business in competitive territory.

Among the sales of Steel Rails are 63,000 tons for 1907 for the Southern Railway by the Tennessee Company, 14,000 tons additional for the Seaboard Air Line, and 13,000 tons for the Lima & Toledo Traction Line.

The Structural mills have booked among other contracts 5000 tons for Los Angeles. No orders for San Francisco have been placed, other reports to the contrary notwithstanding. The 6000 tons for the extension of the New York Subway is expected to be placed soon.

Activity continues in Steel Bars and the contracts for Agricultural Shapes for the coming season are now under negotiation.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Apr. 25, 1906.	Apr. 18, 1906.	Mar. 28, 1906.	Apr. 26, 1905.
PIG IRON, Per Gross Ton:				
Foundry No. 2, Standard, Philadelphia	**$18.50**	$18.50	$18.25	$17.75
Foundry No. 2 Southern, Cincinnati	**16.75**	16.75	16.50	16.25
Foundry No. 2, Local, Chicago	*18.75*	18.75	19.00	17.25
Bessemer, Pittsburgh	*18.10*	18.35	18.25	16.35
Gray Forge, Pittsburgh	*16.60*	16.85	16.85	15.60
Lake Superior Charcoal, Chicago	*19.25*	19.50	19.75	18.50
BILLETS, RAILS, &c., Per Gross Ton:				
Bessemer Billets, Pittsburgh	27.00	27.00	27.00	24.00
Forging Billets, Pittsburgh	32.00	32.00	32.00	27.00
Open Hearth Billets, Phila	29.00	29.00	29.00	28.00
Wire Rods, Pittsburgh	**34.50**	34.00	34.00	34.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
O. Steel Rails, Chicago	**14.00**	14.00	13.50	14.00
O. Steel Rails, Philadelphia	**17.25**	17.00	17.00	18.00
O. Iron Rails, Chicago	**21.25**	21.25	20.50	19.50
O. Iron Rails, Philadelphia	21.50	21.50	21.50	24.00
O. Car Wheels, Chicago	**19.00**	19.00	18.00	15.00
O. Car Wheels, Philadelphia	*16.75*	16.75	17.00	17.00
Heavy Steel Scrap, Pittsburgh	**15.00**	15.00	14.50	16.00
Heavy Steel Scrap, Chicago	13.50	13.50	13.50	13.50
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia	*1.63½*	1.63½	1.75½	1.73½
Common Iron Bars, Chicago	*1.66½*	1.66½	1.71½	1.60
Common Iron Bars, Pittsburgh	*1.50*	1.55	1.60	1.60
Steel Bars, Tidewater, New York	1.64½	1.64½	1.64½	1.64½
Steel Bars, Pittsburgh	1.50	1.50	1.50	1.50
Tank Plates, Tidewater, New York	1.74½	1.74½	1.74½	1.74½
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.60
Beams, Tidewater, New York	1.84½	1.84½	1.84½	1.74½
Beams, Pittsburgh	1.70	1.70	1.70	1.60
Angles, Tidewater, New York	1.84½	1.84½	1.84½	1.74½
Angles, Pittsburgh	1.70	1.70	1.70	1.60
Skelp, Grooved Steel, Pittsburgh	1.57½	1.57½	1.57½	1.65
Skelp, Sheared Steel, Pittsburgh	1.60	1.60	1.60	1.70
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, No. 27, Pittsburgh	2.25	2.25	2.25	2.30
Wire Nails, Pittsburgh	1.85	1.85	1.85	1.80
Cut Nails, Pittsburgh	1.80	1.80	1.80	1.80
Barb Wire, Galv., Pittsburgh	2.30	2.30	2.30	2.25
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Copper, New York	18.62½	18.62½	18.62½	15.00
Spelter, St. Louis	6.05	5.95	6.05	5.75
Lead, New York	**5.50**	5.35	5.35	4.50
Lead, St. Louis	**5.40**	5.30	5.27½	4.50
Tin, New York	**39.80**	38.85	37.45	30.20
Antimony, Hallett, New York	**21.00**	20.00	17.00	8.50
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	**$3.79**	$3.79	$3.69	$3.74

Chicago.

FISHER BUILDING, April 25, 1906.—(*By Telegraph.*)

Implement makers have followed their recent heavy purchases of Steel Bars with large contracts for other Iron and Steel commodities, including Harrow Disks, Smooth Finished Machinery Steel, Shafting and Iron Bars, for delivery to January 1, and in some cases during the ensuing 12 months. None of the manufacturers of these lines has made concessions to induce early buying and contracts are being closed at current quotations. This trade has also placed large orders for Malleable Castings, and Malleable foundries now are anxiously endeavoring to cover Pig Iron requirements. Inquiries are now being figured on by dealers and furnaces for Malleable Bessemer aggregating 25,000 tons and in addition a fair tonnage was closed during the week. One interest purchased 3000 tons and several others closed for 1000-ton lots, while a large car interest in this district contracted for 5000 tons of Malleable Bessemer and 3000 tons of Foundry Iron for delivery the next three months. Quotations on Malleable Bessemer show a wide spread, one Ohio operator asking only $18.30, delivered, as compared with $18.80 asked by the local stacks. A large Steel foundry interest has come into the market for a round block of Basic and will purchase from 5000 to 10,000 tons providing concessions will be made. The smaller interests have not bought as heavily, however, as earlier in the month and many consumers still continue to hold off in anticipation of lower values. After July 1 the International Harvester Company will continue its conversion arrangement with the Interstate Iron & Steel Company until April, 1907, when its new continuous Bar mill will be placed in operation. By the terms of this agreement the International Harvester Company receives 4000 tons of Bars monthly from the Interstate Iron & Steel Com-

pany, finished from Billets rolled in its Bessemer plant, and the extension of this contract involves 36,000 tons of material. Specifications on all classes of rolled products, including Rails and Shapes, received daily by the Illinois Steel Company still exceed mill shipments, and deliveries continue to be deferred. Increased shipments of Wrought Pipe are already being forwarded to San Francisco, and Wire Nails have been similarly affected, but on other lines deliveries have been held up awaiting further advices. The American Bridge Company has contracts on three modern buildings involving 3500 tons, the material for which has already been fabricated, but no advices have been received from San Francisco regarding the continuance of this work.

Pig Iron.—A car interest at Michigan City figured as the largest buyer last week, having purchased 5000 tons of Malleable Bessemer and 3000 of Foundry Iron. One purchase of 3000 tons of Malleable Bessemer was also reported, and there were several scattering lots of 1000 tons. Unclosed inquiries for this grade aggregate 25,000 tons, and the indications are that the bulk of this tonnage will be closed in a few days. A wide range of prices is being quoted, local furnaces asking $18.80, while one Ohio interest is naming $16, at the furnace, or $18.30, delivered. Several of the largest foundry interests in this section steadfastly refuse to make formal inquiry, although tentatively asking for prices on large lots. The strength of the Basic Iron market militates against the closing of large tonnage in the immediate future, as Ohio furnaces are quoting $17, at furnace, equivalent to $19.30, Chicago, and Virginia producers are asking $16, at furnace, or $18.90, Chicago. The largest Southern producer is out of the market temporarily, and other interests are quoting $14.50 or $18.40, Chicago delivery. Steel interests will not cover at these prices, and the large Steel foundry consolidation now in the market for 5000 to 10,000 tons will only purchase small lots for its various plants unless lower prices are named. Stock reports received by a local Pig Iron merchant from nearly 100 buyers in Chicago and adjacent territory lead him to conclude that 65 per cent. are only covered to July 1, 20 per cent. are not supplied that far and the remaining 15 per cent. have Iron bought for varying deliveries after July 12. Prevailing quotations, f.o.b. Chicago, are as follows:

Lake Superior Charcoal	$19.25 to $20.00
Northern Coke Foundry, No. 1	19.25 to 19.50
Northern Coke Foundry, No. 2	18.75 to 19.00
Northern Coke Foundry, No. 3	18.25 to 18.50
Northern Scotch, No. 1	19.75 to 20.00
Ohio Strong Softeners, No. 1	19.30 to 19.55
Ohio Strong Softeners, No. 2	18.80 to 19.05
Southern Coke, No. 1	18.25 to 18.40
Southern Coke, No. 2	17.65 to 17.90
Southern Coke, No. 3	17.15 to 17.40
Southern Coke, No. 4	16.65 to 16.90
Southern Coke, No. 1 Soft	18.15 to 18.40
Southern Coke, No. 2 Soft	17.65 to 17.90
Southern Gray Forge and Mottled	16.15 to 16.40
Malleable Bessemer	18.30 to 18.80
Standard Bessemer	19.30 to 19.55
Jackson Co. and Kentucky Silvery, 6 %	20.30 to 20.80
Jackson Co. and Kentucky Silvery, 8 %	21.30 to 21.80
Jackson Co. and Kentucky Silvery, 10 %	23.30 to 23.80

Metals.—Lead has advanced 15c. per 100 lbs. during the week. Although Copper has lost little of its strength, the demand is not quite as pronounced as during the earlier weeks of the month. Antimony is reported in feverish condition and sharp advances are noted. We quote: Casting Copper, 18⅜c. to 18⅝c.; Lake, 18⅝c. to 18⅞c., in car lots; small lots, ¼c. to ⅜c. higher; Pig Tin, car lots, 40c. to 40½c.; small lots, 40½c. to 41c.; Spelter, prompt delivery, 6.20c. to 6.35c., for car lots; Lead, Desilverized, 5.60c. to 5.85c., for 50-ton lots; Corroding, 6.15c.to 6.40c., for 50-ton lots; on car lots, 2¼c. per 100 lbs. higher; Cookson's Antimony, 22½c. to 23c., and other grades, ½c. less; Sheet Zinc is $7.75 list, f.o.b. Laselle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 16c.; Heavy Copper, 15¾c.; Copper Bottoms, 15c.; Copper Clips, 15½c.; Red Brass, 15½c.; Red Brass Borings, 13½c.; Yellow Brass, Heavy 12c.; Yellow Brass Borings, 10c.; Light Brass, 8¾c.; Lead Pipe, 4¾c.; Tea Lead, 4½c.; Zinc, 4½c.; Pewter, No. 1, 24c.; Tin Foil, 29c.; Block Tin Pipe, 27½c.

(By Mail.)

Billets and Rods.—Forging Billets are now being offered more freely in this market, and on small lots for prompt delivery some of the mills are quoting $34 to $35. Bessemer and Open Hearth Rods continue scarce and are held at $34, Pittsburgh, equivalent to $37, Chicago.

Rails and Track Supplies.—The Illinois coal mining companies, anticipating a resumption of operations during the summer months, are beginning to place large contracts for Light Rails for July and August delivery. The bookings thus far this month easily total 6,000 tons. The Illinois Steel Company is booking no further tonnage of Standard Section Rails for this year's delivery, although the Carnegie Steel Company continues to take on orders for the fourth quarter. Quotations are unchanged, as follows: Angle Bars, accompanying Rail orders, 1906 delivery, 1.50c.; carload lots, 1.75c.; Spikes, 2.15c. to 2.25c.; Track Bolts, 2.65c. to 2.75c., base, Square Nuts, and 2.80c. to 2.90c., base, Hexagon Nuts. The store prices on Track Supplies range from 15c. to 20c. above mill prices. Light Rails, 30 to 45 lb. sections, $27 to $28; 25-lb., $29; 20-lb., $29 to $30; 16-lb., $30 to $31; 12-lb., $31 to $32, and lighter sections down to 8-lb., $38 to $40, f.o.b. mill. Standard Sections are unchanged, at $28, f.o.b. mill, full freight to destination.

Structural Material.—At a meeting of the manufacturers of Structural Shapes held in New York last week prevailing quotations were reaffirmed. No tonnage of importance has been booked in this market, the largest contract calling for 500 tons for Western delivery, which was placed by the American Smelting & Refining Company. Specifications are now being figured on by the fitting shops for the Musical College and the Kessler Building, amounting to 2300 tons. The Carnegie Steel Company has issued orders to hold up shipments of Shapes to San Francisco until further advices can be received. The American Bridge Company has contracts for three large buildings, the Steel for which has not yet been shipped. Thus far no definite information has been received covering future operations, although it is probable that there will be no change in previous plans. Quotations are unchanged, as follows: Beams and Channels, 3 to 15 inches, inclusive, 1.86½c.; Angles, 3 to 6 inches, ¼-inch and heavier, 1.86½c.; Angles, larger than 6 inches on one or both legs, 1.96½c.; Beams, larger than 15 inches, 1.96½c.; Zees, 3 inches and over, 1.86½c.; Tees, 3 inches and over, 1.91½c., in addition to the usual extras for cutting to extra lengths, punching, coping, bending or other shop work.

Plates.—Specifications continue to be received freely, although little new tonnage is being placed. All of the mills are in position to make shipments within two or three weeks and car works requirements are notably heavy. The American Car & Foundry Company received orders for 4250 box and gondola cars during the week. Quotations are held firmly, as follows: Tank quality, ¼-inch and heavier, wider than 6¼ and up to 100 inches wide, inclusive, car lots, Chicago, 1.76½c.; 3-16-inch, 1.86½c.; Nos. 7 and 8 gauge, 1.91½c.; No. 9, 2.01½c.; Flange quality, in widths up to 100 inches, 1.86½c., base, for ¼-inch and heavier, with the same advances for lighter weights; Sketch Plates, Tank quality, 1.86½c.; Flange quality, 1.96½c. Store prices on Plates are as follows: Tank Plate, ¼-inch and heavier, up to 72 inches wide, 2c. to 2.10c.; from 72 to 96 inches wide, 2.10c. to 2.20c.; 3-16 inch up to 60 inches wide, 2.10c. to 2.20c.; 72 inches wide, 2.35c. to 2.45c.; No. 8 up to 60 inches wide, 2.15c. to 2.25c.; Flange and Head quality, 25c. extra.

Sheets.—The Sheet market continues to gain strength and the concessions, amounting to as high as $2 a ton made a month ago, have been withdrawn by most of the independent mills. Large distributers are holding prices firmly and notwithstanding the heavy output very little material is being accumulated. Quotations are well maintained, as follows: Blue Annealed, Nos. 9 and 10, 1.86½c. to 1.91½c.; Nos. 16 and 17, 2.06½c. to 2.11½c.; Box Annealed, Nos. 18 to 20, 2.26½c. to 2.31½c.; No. 27, 2.46½c. to 2.51½c.; No. 28, 2.56½c. to 2.61½c.; Galvanized Sheets, Nos. 10 to 14, 2.61½c.; Nos. 17 to 21, 2.86½c.; Nos. 22 to 24, 3.01½c.; Nos. 25 and 26, 3.21½c.; No. 27, 3.41½c.; No. 28, 3.61½c.; No. 30, 4.11½c. Sheets from store: Blue Annealed, Nos. 10 and 11, 2.10c. to 2.20c.; Nos. 12 and 13, 2.15c. to 2.25c.; Nos. 14 and 15, 2.20c. to 2.30c.; No. 16, 2.30c. to 2.40c. Box Annealed: Nos. 18 to 20, 2.50c. to 2.55c.; Nos. 22 to 24, 2.55c. to 2.60c.; No. 26, 2.60c. to 2.65c.; No. 27, 2.65c. to 2.70c.; No. 28, 2.75c. to 2.80c.; No. 30, 3.15c. to 3.20c. Galvanized from store: Nos. 10 to 20, 3c. to 3.05c.; Nos. 22 to 24, 3.15c. to 3.20c.; No. 26, 3.35c. to 3.40c.; No. 27, 3.55c. to 3.60c.; No. 28, 3.75c. to 3.80c.; No. 30, 4.95c. to 5c.

Bars.—Although the conversion contract which the International Harvester Company has with the Interstate Iron & Steel Company expires on July 1, the latter will continue to furnish Steel Bars to the former until April, 1907. At that time the International Harvester Company expects to have its continuous Bar mill in operation. According to the terms of this agreement the Interstate Iron & Steel Company furnishes 4000 tons of finished material a month to the International Harvester Company, and this agreement provides for an extension of nine months, involving about 36,000 tons of material. The demand for Iron Bars has improved materially, and wagon and implement makers are buying freely for future requirements, their purchases, for the most part, extending to January 1. Several 1000-ton contracts have been placed, and one provides for the delivery of 2000 tons. All of this material was placed on the basis of 1.66½c., Chicago. Since the closing of the Steel Bar requirements for the implement trade little new tonnage has been booked by the mills, although specifications are coming in freely and shipments continue to be delayed. Quotations are unchanged, as follows: Iron Bars, 1.66½c.; Steel Bars, 1.66½c., both half extras; Hoops, 2.06½c., extras as per Hoop card; Bands, 1.66½c., as per Steel card; Soft Steel Angles and Shapes, 1.66½c., half extras. Store prices are as follows: Bar Iron, 2.10c.; Steel Bars, 1.85c., and as high as 2c. is asked on certain scarce sizes; Steel Bands, 1.85c. to 1.90c., half extras; Soft Steel Hoops, 2.30c. to 2.40c., full extras.

Merchant Pipe.—San Francisco jobbers instead of holding up shipments are requesting that they be hurried, and it is probable that the requirements during the next few months will be exceedingly heavy. Otherwise, the market is without change. Mill quotations are unchanged, on the basis of 81 per cent. off the list, Pittsburgh, although official discounts on car lots, Chicago, remain as follows: Black Steel Pipe, 78.35 per cent. on the base sizes, ¾ to 6 inches, and Galvanized, 68.35 per cent. Iron Pipe is quoted from 1½ to 2 points higher. From store in small lots Chicago jobbers are quoting 76½ to 77 per cent. on Black Steel Pipe, ¾ to 6 inches.

Boiler Tubes.—Specifications continue to be freely received, although new business is comparatively light. Official discounts, base sizes, in car lots, are as follows: Steel Tubes, 62.35; Iron, 51.35; Seamless, 50.35; 2½-inch and smaller and lengths over 18 feet, and 2½-inch and lengths over 22 feet, 10 per cent. extra. Store prices are unchanged, as follows:

	Steel.	Iron.	Seamless.
1 to 1½ inches	40	35	42½
1¾ to 2¼ inches	50	35	35
2½ inches	52½	35	30
2¾ to 3 inches	60	47½	42½
6 inches and larger	50	35	..

Merchant Steel.—Implement makers are now placing large contracts for Harrow Disks, Shafting and Smooth Finished Machinery Steel to cover requirements during the ensuing 12 months. The total consumption of this material is naturally much smaller than that of Steel Bars by this trade, although the bookings of such a large interest as the Crucible Steel Company of America and the Cambria Steel Company will easily aggregate 50,000 tons for the season. Quotations are unchanged, as follows: Planished or Smooth Finished Tire Steel, 1.86½c.; Iron Finish up to 1½ x ½ inch, 1.81½c.; Iron Finish, 1½ x ½ inch and larger, 1.66½c., base: Channels for solid rubber tires, ¾ to 1 inch, 2.16½c., and 1⅛ inch and larger, 2.06½c.; Smooth Finished Machinery Steel, 1.91½c.; Flat Sleigh Shoe, 1.71½c.; Concave and Convex Sleigh Shoe, 1.96½c.; Cutter Shoe, 2.35c.; Toe Calk Steel, 2.21½c.; Railway Spring, 1.86½c.; Crucible Tool Steel, 6½c. to 8c., and still higher prices are asked on special grades. Shafting, 50 per cent. off on car lots and 45 per cent. in less than car lots, in base territory.

Cast Iron Pipe.—The city of Grand Rapids, Mich., awarded contract for 700 tons of Pipe to the Pipe department of the American Car & Foundry Company at Detroit. No other lettings of importance are now under consideration, and industrial purchases are also light. Quotations remain firm and unchanged, as follows: Water Pipe, 4-inch, $31; 6, 8, 10 and 12 inch, $30; over 12-inch, $29, with $1 extra for Gas Pipe. Large municipal contracts are usually placed at somewhat lower basis.

Coke.—Somewhat lower prices are prevailing on both Connellsville and Wise County grades, notwithstanding the Coal strike. Wise County Coke is freely offered in this market at $5, and on Connellsville Coke $5.55 to $5.65 is asked. By-product Coke continues to be held at $5.80, Chicago, regardless of the lower quotations named by outside producers. Consignments of Foundry Coke to this market are again being freely made, and 20 cars of Wise County Coke, to avoid demurrage charges, were offered at $4.75, Chicago.

Old Material.—A firmer tone pervades the Old Material market, despite the recent heavy offerings by Western roads. All of this material has been absorbed by both consumers and dealers, and while there have been few changes in prices during the week many grades show the increasing strength. The Chicago, Burlington & Quincy Railroad this week will dispose of about 2000 tons of material, and a few other inconsequential lists have also been issued. The range of prices paid by large consumers to producers and dealers, per gross ton, car lots, f.o.b. Chicago, is as follows:

Old Iron Rails	$21.25 to $21.50
Old Steel Rails, 4 feet and over	16.00 to 16.50
Old Steel Rails, less than 4 feet	14.00 to 14.50
Heavy Relaying Rails, subject to inspection, 50 pounds and under	27.00 to 27.50
Old Car Wheels	19.00 to 19.50
Heavy Melting Steel Scrap	13.50 to 14.00
Frogs, Switches and Guards	13.50 to 14.00
Mixed Steel	12.00 to 12.50

The following quotations are per net ton:

Iron Fish Plates	$16.50 to $17.00
Iron Car Axles	22.50 to 23.00
Steel Car Axles	18.00 to 18.50
No. 1 Railroad Wrought	14.50 to 15.00
No. 2 Railroad Wrought	13.50 to 14.00
Locomotive Tires, smooth	14.00 to 14.50
Railway Springs	13.50 to 14.00
No. 1 Dealers' Forge	12.00 to 12.50
Mixed Busheling	10.00 to 10.50
Iron Axle Turnings	11.00 to 11.50
Soft Steel Axle Turnings	11.00 to 11.50
Machine Shop Turnings	11.00 to 11.50
Cast Borings	9.00 to 9.25
Mixed Borings, &c.	9.00 to 9.25
No. 1 Mill	9.00 to 9.25
No. 2 Mill	8.00 to 8.25
No. 1 Boilers, cut to Sheets and Rings	9.50 to 10.00
No. 1 Cast Scrap	13.25 to 13.75
Stove Plate and Light Cast Scrap	10.50 to 11.00
Railroad Malleable	13.50 to 14.00
Agricultural Malleable	12.50 to 13.00

Pickands, Brown & Co., Chicago, have been appointed exclusive selling agents for the Cadillac brand of Lake Superior Charcoal Pig Iron manufactured by the Mitchell-Diggins Iron Company, Cadillac, Mich. The furnace of this company, erected during the past year, is now in active operation under the management of the president of the company, J. C. Ford, who is widely known in connection with the Spring Lake Iron Company. The product of this furnace will be Malleable and Car Wheel grades of Pig Iron.

Philadelphia.

REAL ESTATE TRUST BUILDING, April 24, 1906.

The events of the past week have caused considerable confusion in business circles, but especially so in the world of finance. There may be no direct connection between earthquakes and the Steel trade, yet it is hardly possible that a disaster such as that on the Pacific Coast can be experienced without being felt by every important business interest. The uppermost thought in many minds seems to be that the rebuilding of a city like San Francisco will give a mighty impulse to the Steel trade, and it will some time, but it surely will not be in the immediate future. Before going into a work of that kind it is necessary to count the cost and to provide means for carrying the work to completion, all of which will be accomplished sooner or later, but under the prevailing world wide stringency in money even a rich country like the United States may have to call a halt. New issues of bonds and stocks have been authorized by leading railroads for larger amounts than the San Francisco losses, all for perfectly legitimate purposes, but the money must be provided within the next few months or much of the work which these issues were intended to pay for must be curtailed or totally suspended. By an unfortunate coincidence it so happens that those who are usually the largest buyers of such securities must of necessity become the largest sellers of what they already hold, so as to recoup their own losses, and herein will be found the most serious difficulty. Neither is it possible to conceal the fact that the finances of the country have been strained for months past. Gold has been imported as a virtual lien on the growing crops, and even the United States Treasury has considered it advisable to make deposits as an advance against this same gold "to arrive." Under these conditions it is impossible to maintain optimistic views in regard to an immediate expansion in the demand for Iron and Steel. For the present the fullest activity may be expected, but its continuance will depend entirely on the money market, in regard to which the very foremost banking houses are said to have serious apprehensions.

Pig Iron.—The complications to which we have already referred have not as yet appreciably affected the Pig Iron situation. The scarcity of fuel is beginning to be felt, however, and unless the miners settle their differences at an early date the Pig Iron shortage may cause a good deal of trouble. Consumers are clamoring for deliveries, and in every direction there seems to be an almost complete exhaustion of supplies. The output is less than it was a few weeks ago, several local furnaces having had to bank for want of either hard Coal or Coke, or both, with no prospect of relief unless the miners decide to resume work. Prices are not materially changed from what they were a week ago, although with the strong demand which is now setting in makers of Pig Iron are somewhat reluctant in quoting on large lots, especially for deliveries during the next 60 to 90 days. For the last half of the year, however, business is accepted at quoted rates, but consumers are disposed to go slow until more light can be had on the situation. Apart from the California disaster with all its ramifications, there are the difficulty with the miners and the outlook for crops, both of which contain elements of uncertainty which must be measurably cleared up before confidence can be restored. As regards the Iron and Steel trades, separately considered, conditions could hardly be more favorable than they are at this time, but how far they will be affected by other influences is a serious question. As already stated, there is an urgent demand for anything that can be delivered within the next 60 or 90 days, and it would cause no surprise to see prices advance, but the demand for deliveries during the last half of the year is not as strong as it was two or three weeks ago. Some business has been done on the basis of about $18.50 for No. 2 X Foundry, $16.25 to $16.50 for Nos. 3 and 4 Foundry, and at a little under $18 for Basic Iron. It should be said, however, that while there is a tendency to defer action in regard to late deliveries, it is recognized that there are possibilities of even stronger markets than any that have yet been realized during 1906. Good crops, labor troubles settled, and no undue financial disturbances arising out of the California disaster might give a new start to business, as there can be no question that the requirements of the country will be larger than they have ever been. For the present it appears to be a matter of finances

more than anything else, but it will not take long before pretty clear views may be formed in regard to that most important matter. In the meanwhile prices are about as follows for Philadelphia and nearby deliveries, the outside figures for May and June shipments being readily obtained:

No. 1 X Foundry	$19.25 to $19.50
No. 2 X Foundry	18.50 to 19.00
No. 2 Plain	18.00 to 18.50
Standard Gray Forge	16.50 to 16.75
Ordinary Gray Forge	16.00 to 16.25
Basic	17.90 to 18.10
Low Phosphorus	25.00 to 25.50
Malleable	19.00 to 19.25
Bessemer	19.75 to 20.00

Steel Alloys.—There is very little doing in Alloys, and prices, although easier, are nominally the same as last week—namely, $110 to $115 for May and June shipments of Ferromanganese, or $80 to $82.50 for the last half of the year. Receipts during the week have been larger and will probably continue to increase, so as to secure the premiums on the nearby months.

Steel.—There is a strong demand for Steel and last week's prices ($29 to $30 for ordinary Open Hearth and $32.50 to $35 for Forging Billets) are well maintained. Mills are crowded with work and prompt shipments are hard to secure. There is a great deal of new business around, and if May or June deliveries could be guaranteed large additions could be made to the order books.

Plates.—There is a good demand for Universal Plates, but Sheared Plates are comparatively dull. Prospects are very good, however, and a large amount of new business is expected during the coming month. Prices are unchanged, as follows:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel	1.73½	1.78½
Flange or Boiler Steel	1.83½	1.88½
Marine, A. B. M. A. and Commercial Fire Box Steel	1.93½	1.98½
Marine	2.13½	2.18½
Locomotive Fire Box Steel	2.23½	2.28½

The above are base prices for ¼-inch and heavier. The following extras apply:

	Extra per 100 pounds.
3-16-inch thick	$0.10
Nos. 7 and 8, B. W. G.	.15
No. 9, B. W. G.	.25
Plates over 100 to 110 inches	.05
Plates over 110 to 115 inches	.10
Plates over 115 to 120 inches	.15
Plates over 120 to 125 inches	.25
Plates over 125 to 130 inches	.50
Plates over 130 inches	1.00

Structural Material.—There is nothing special doing in this market, although for points at a distance large orders are being entered. There is a disposition to stock up with this class of material, however, as it is expected that the demand for California will absorb an immense amount during the last half of the year and it is considered advisable to prepare for contingencies. Prices are unchanged, as follows: Beams, Channels and Angles, 1.83½c. to 2c., delivered.

Bars.—Prices are very strong at 1.63½c. for both Refined Iron and Soft Steel, but in most cases 1.68½c. has to be paid to secure prompt shipments. There is plenty of business at the inside figures, but as a rule it is restricted to deliveries during the next 60 or 90 days, buyers and sellers alike being inclined to confine their operations to within the dates named. It is noticed, however, that specifications are unusually prompt, so that mills are mostly running full time.

Sheets.—There is a decided improvement in the demand for Sheets, as it is believed that a great deal of light material will be wanted immediately for California. Manufacturers of light goods are getting very busy in anticipation of orders for their specialties, so that the Sheet mills are about the first to feel the effects of this new source of demand. Prices are unchanged, however, as follows: Nos. 18 to 20, 2.40c.; Nos. 22 to 24, 2.50c.; Nos. 25 and 26, 2.60c.; No. 27, 2.70c., and No. 28, 2.80c.

Old Material.—There is a distinctly stronger market for Old Material, Steel feeling it most. Sales have been made at $17 ot $17.25 for No. 1 Steel, and holders claim that they will get more money in the near future. Short Wrought Iron Scrap is also doing better, sales having been made at as high as $18. The general tone is stronger, with bids and offers for deliveries in buyers' yards being about as follows:

Scrap Steel Rails and Crops	$17.25 to $17.50
No. 1 Steel Scrap	16.75 to 17.25
Low Phosphorus Scrap	21.00 to 22.00
Old Steel Axles	20.50 to 21.00
Old Iron Axles	26.00 to 26.50
Old Iron Rails	21.50 to 22.00
Old Car Wheels	16.75 to 17.00
Choice Scrap, R. R., No. 1 Wrought	20.50 to 21.00
No. 1 Yard Scrap	18.50 to 19.00
Long and Short	17.00 to 18.00
Machinery Scrap	15.50 to 16.00
Wrought Iron Pipe	15.00 to 16.00
No. 1 Forge Fire Scrap	15.50 to 16.00
No. 2 Light Ordinary	11.25 to 11.75
Wrought Turnings	14.00 to 14.50
Axle Turnings, Choice Heavy	14.50 to 15.00
Cast Borings	10.25 to 10.75
Stove Plates	12.50 to 13.00
Grate Bars	12.00 to 12.50

Henry P. Miller has severed his connection with Weston Donaldson and has opened offices under the firm name of H. P. Miller & Co., Real Estate Trust Building, Philadelphia, for the transaction of a brokerage business in railroad and contractors' equipment, together with Iron and Steel Scrap.

Pittsburgh.

PARK BUILDING, April 25, 1906.—(*By Telegraph.*)

Pig Iron.—There is an active inquiry for both Bessemer and Basic Iron and some heavy sales have been made. A large Steel company that is itself a heavy producer of Pig Iron has bought about 35,000 tons of Bessemer Iron for May and June shipment at $17.25, Valley furnace. We also note a sale of 500 tons for May delivery at the same price. Inquiries are in the market for 30,000 to 40,000 tons of Basic. The American Steel Foundries is asking for 9000 tons for its St. Louis plant, and a local interest is asking for 5000 tons for a Steel casting plant at Newark, N. J., while other consumers are in the market for good sized tonnage. Basic Iron is generally quoted at $16.75 to $17, Valley furnaces, but it is possible that on a firm offer our lower price could be shaded. A new interest has appeared in the market as a seller of Basic Iron for delivery commencing July and is quoting relatively low prices. There is a moderate inquiry for Foundry Iron, Northern brands being held at $16.50, Valley furnace, for large lots, and up to $17 for small lots. Consumers of Foundry Iron are taking it in promptly and it is believed the demand will soon be better. We note a fair inquiry for Forge Iron, Northern brands being quoted at $15.75, Valley furnace, or $16.60, Pittsburgh. On a firm offer and for large tonnage it is possible that Northern Forge could be bought at very close to $15.50, Valley furnace.

Steel.—The shortage in supply of Bessemer and Open Hearth Billets and Sheet and Tin Bars, which has existed in this district so long, is getting worse and deliveries of Steel by the mills on contracts are very unsatisfactory. We quote Bessemer Billets at $27 and Open Hearth Billets at $28, Pittsburgh. Sheet and Tin Bars in random lengths are held at $28, Pittsburgh, with freight to point of delivery added. Several outside producers of Steel are offering to shade these prices about 50c. a ton.

(*By Mail.*)

Immediately following the calamity in San Francisco, the Carnegie Steel Company of this city wired instructions to its sales managers all over the country that preference in deliveries of materials of any kind to be used in San Francisco would be made, these to include Steel Rails, Structural Steel, Plates, and any other products. This action is certainly very commendable and will no doubt be followed by other large Steel concerns, who will hurry materials forward to the stricken city as fast as the railroads can carry them. Already some inquiries for building materials for San Francisco are being received in this city, but it will probably be some little time before actual shipments are made, as much work is to be done by the owners of buildings that were destroyed in the way of adjusting insurance and having street lines relocated before actual building can be started. Constituent interests of the United States Steel Corporation, such as the Carnegie Steel Company, National Tube Company, American Steel & Wire Company and American Sheet & Tin Plate Company, suffered losses by the earthquake or conflagration, the Union Trust Building in San Francisco, which contained their offices, having been burned out, but fortunately none of the employees lost their lives. The whole Iron market is in very satisfactory condition, the demand for all kinds of Iron and Steel, with two or three exceptions, being enormously heavy and prices all along the line, except on Sheets, Tin Plate and Pipe, being on a good basis. We note quite a heavy inquiry for Bessemer and Basic Pig Iron, three or four of the larger Steel makers being in the market for round lots of Bessemer Iron, which so far they have been unable to find. Very little can be had for delivery this side of July 1. Basic Iron is quite firm, but Foundry Iron continues rather weak because of the sharp competition between two concerns for tonnage coming up. Northern No. 2 Foundry Iron is held on the basis of about $16.50 at Valley furnace, but for large tonnage some sellers would probably shade this price. There is not much inquiry for Forge Iron, Northern brands being held at about $16, Valley, or $16.85, Pittsburgh. The shortage in the Steel supply is growing steadily worse, and consumers of Billets, Sheet and Tin Bars are getting very poor deliveries from the mills and are often compelled to shut down waiting for Steel to arrive. The situation that has existed in the Steel market in this district for some months has strongly emphasized the fact that there is a material shortage in Bessemer and Open Hearth capacity, but it will be some months before any relief can be had. All the Steel plants are making new records for output, but are still very much behind in deliveries. In Finished Iron and Steel the situation is quite satisfactory.

with the possible exceptions of Sheets, Tin Plate and Pipe, for which the demand is fairly active, but prices are low. The Scrap market is quiet, prices being weak, but Coke is in better demand and at higher prices.

Ferromanganese.—There has not been much inquiry in the past week, but prices are firm on the basis of $110 to $115, Pittsburgh, for spot delivery. For May and June shipment $95 to $100 is quoted and for last half of the year delivery about $85 is the ruling figure. There is some inquiry for Ferro for third quarter, but we do not hear of any actual tonnage being placed.

Muck Bar.—The market is very quiet. Muck Bar made from Scrap is held at about $26, while for Bar made from all Pig Iron $29, Pittsburgh, is quoted.

Steel Rails.—While some large inquiries are in the market very little tonnage was placed in the past week, the Carnegie Steel Company having taken less than 5000 tons. Among inquiries is one from the Tidewater Railroad for 27,000 tons for 1907 delivery. It is probable that some good sized contracts will be placed this week. We quote Standard Sections at $28 at mill. We quote Light Rails as follows: 8-lb., $36; 10-lb., $32; 12-lb., $30; 16-lb., $29; 20-lb., $28.50; 25 to 45 lb., $27.50 to $28, maker's mill.

Rods.—The demand is quite active and the market is very firm. We quote Bessemer and Open Hearth Rods at $34.50 to $35, Pittsburgh, while Chain Rods are also held at the latter price.

Skelp.—The mills are busy on contracts received some time ago, but new tonnage is rather light. We quote: Grooved Steel Skelp, 1.57½c. to 1.60c.; Sheared Steel Skelp, 1.60c. to 1.65c.; Grooved Iron Skelp, 1.65c. to 1.70c.; Sheared Iron Skelp, 1.75c. to 1.80c., Pittsburgh, these prices being for ordinary widths and gauges.

Structural Material.—A meeting of the makers of Structural Steel was held in New York, April 20, at which prices were reaffirmed. It is expected that before long large inquiries for Structural Steel for shipment to San Francisco will be in the market, and as noted above the Carnegie Steel Company and no doubt the other mills as well will give preference in deliveries on such contracts. In the past week the American Bridge Company has taken 2000 tons of bridge work for the New Orleans & Northern Railroad and 700 tons for the Sugar Creek & Northern Railroad. The Pittsburgh Steel Construction Company has taken 600 tons for a foundry building for the National Foundry Company, at Erie, Pa. Some large contracts are pending and are about ready to be closed. The mills are still behind in deliveries, but are making better shipments than they were some time ago. Prices as reaffirmed at the meeting last week are as follows: Beams and Channels, up to 15-inch, 1.70c.; over 15-inch, 1.80c.; Angles, 3 x 2 x ¼ inch thick up to 6 x 6 inches, 1.75c.; 8 x 8 and 7 x 3½ inches, 1.80c.; Zees, 3-inch and larger, 1.70c.; Tees, 3-inch and larger, 1.75c. Under the Steel Bar card Angles, Channels and Tees under 3-inch are 1.60c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

Plates.—Prices on Plates were reaffirmed at the meeting of the manufacturers held in New York last week. We are advised that the demand for wide sizes of Plates is showing betterment and the mills are entering more tonnage than for some time. The Carnegie Company has taken about 2500 tons for a new passenger boat for the Detroit & Cleveland Navigation Company. Shipments of Plates to the Steel Car companies continue very heavy and will be for some time to come. Some of the mills are short of Steel, which is interfering with output to some extent. Prices, as affirmed by the mills last week, but which are sometimes shaded $1 or more on narrow sizes, are as follows: Tank Plates, ¼-inch thick, 6¼ up to 100 inches in width, 1.60c., base, at mills, Pittsburgh. Extras over the above prices are as follows:

	Extra per 100 pounds.
Gauges lighter than ¼-inch to and including 3-16-inch Plates on thin edge	$0.10
Gauges Nos. 7 and 8	.15
Gauge No. 9	.25
Plates over 100 to 110 inches	.05
Plates over 110 to 115 inches	.10
Plates over 115 to 120 inches	.15
Plates over 120 to 125 inches	.25
Plates over 125 to 130 inches	.50
Plates over 130 inches	1.00
All sketches (excepting straight taper Plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
"A. B. M. A." and ordinary Fire Box Steel Plates	.20
Still Bottom Steel	.30
Marine Steel	.40

Shell Grade of Steel is abandoned.

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of ½ of 1 per cent. is allowable. Pacific Coast Base, 1.60c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 inches wide down to 6 inches of Tank, Ship or Bridge quality.

Sheets.—The principal trouble the Sheet mills are having now is to get deliveries of Sheet Bars, which are very unsatisfactory and seem to be getting worse. The American Sheet & Tin Plate Company is operating about 92 per cent. of its Sheet capacity, the balance being idle for lack of Steel only, the company being sold up on Sheets for the next two or three months and considerably behind on deliveries. Independent mills also report trouble in getting prompt deliveries of Sheet Bars, which is interfering with output to some extent. New tonnage in Sheets is fairly large, but the mills are running mostly on contracts taken some time ago when prices were lower. There is still some unevenness in prices of both Black and Galvanized Sheets, principally among jobbers who have large stocks and sometimes shade mill prices $1 to $2 a ton. We quote: Black Sheets, Box Annealed, one pass through cold rolls, Nos. 10 to 12 gauge, 1.95c. to 2c.; Nos. 13 and 14, 2c. to 2.05c.; Nos. 15 and 16, 2.05c. to 2.10c.; Nos. 17 to 21, 2.10c. to 2.15c.; Nos. 22 to 24, 2.15c. to 2.20c.; Nos. 25 and 26, 2.20c. to 2.25c.; No. 27, 2.25c. to 2.30c.; No. 28, 2.35c. to 2.40c.; No. 29, 2.50c. to 2.55c., and No. 30, 2.60c. to 2.65c. We quote Galvanized Sheets as follows: Nos. 10 and 11, 2.30c. to 2.35c.; Nos. 12 to 14, 2.40c. to 2.45c.; Nos. 15 and 16, 2.50c. to 2.55c.; Nos. 17 to 21, 2.65c. to 2.70c.; Nos. 22 to 24, 2.80c. to 2.85c.; Nos. 25 and 26, 3c. to 3.05c.; No. 27, 3.20c. to 3.25c.; No. 28, 3.40c. to 3.45c.; No. 29, 3.65c. to 3.70c., and No. 30, 3.90c. to 3.95c. We quote No. 28 Gauge Painted Roofing Sheets at $1.60 to $1.65 per square, and Galvanized Roofing Sheets, No. 28 gauge, at $2.95 to $3 per square for 2-inch corrugations. These prices are for carload lots, jobbers charging the usual advances for small lots from store.

Bars.—The tonnage of Steel Bars from implement makers and other large consumers taken during the period when the 1.40c. price was in force is estimated at 200,000 tons, the larger part of which was taken by Pittsburgh mills. The market is now quite strong on the basis of 1.50c. for Steel Bars, and a fair amount of new tonnage is being placed at this price. We note a fair demand for Iron Bars, which are now on the same basis as Steel Bars, although some mills, notably the Republic Iron & Steel Company, are quoting slightly higher. We quote Iron Bars at 1.50c. to 1.55c. and Steel Bars 1.50c., base, half extras, for carloads and larger lots, f.o.b. Pittsburgh.

Cotton Ties.—The Cotton Tie business for this year is estimated at 2,500,000 bundles, the greater part of which has been placed with the mills at the agreed price of 85c. per bundle. A few contracts still remain to be given out.

Hoops and Bands.—Specifications on old contracts taken when prices were lower are coming in quite freely, but the amount of new tonnage being placed is very light. We quote Steel Hoops at 1.90c., and Bands for all purposes at 1.50c., base, half extras, as per Standard Steel card. These prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of delivery, an advance of $2 a ton being charged for less than carloads.

Tin Plate.—As noted last week some large inquiries for Tin Plate from canners are in the market for fall delivery and part of this tonnage has been placed. The American Sheet & Tin Plate Company is operating about 85 per cent. of its Tin Plate capacity, the balance being idle for want of Tin Bars. This company has started five hot mills in its Sabraton Works, at Morgantown, W. Va., and the other five mills will be put on as soon as Tin Bars can be obtained. Most of the leading Tin Plate mills are filled up with tonnage for the next two or three months, much of which was taken at lower prices than are ruling now. The official price on Tin Plate continues to be shaded. We quote Tin Plate at $3.60 per base box, f.o.b. Pittsburgh, for 14 x 20 100-lb. Cokes, terms 30 days, less 2 per cent. off for cash in ten days, on which price a rebate of 5c. a box is allowed for carloads and larger lots.

Merchant Steel.—Negotiations are now under way for large contracts for Agricultural Shapes and some tonnage has been placed. Prices of Shafting are firmer and a fair amount of new tonnage is being placed. The mills are making better delivery than for some time, but are still somewhat behind in shipments. We quote: Planished or Smooth Finished Tire Steel, 1.70c.; Iron Finish up to 1½ x ½ inch, 1.65c., and Iron Finish, 1½ x ½ inch and larger, 1.50c., base, Pittsburgh, and Channels for solid rubber tire are quoted as follows: ¾, ⅞ and 1 inch, 2c., and 1⅛-inch and larger, 1.90c.; Toe Calk Steel, 2c. to 2.05c.; Railway Spring Steel, 1.75c. to 1.80c.; Cutter Shoes, 2.20c. to 2.25c.; Flat Sleigh Shoe, 1.50c. to 1.55c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades and 12c. and upward for special grades. We quote Cold Rolled Shafting at 50 per cent. discount in carloads and 45 per cent. in less than carloads, delivered in base territory.

Railroad Spikes.—A fair amount of business is being placed, and the mills are busy on new orders and contracts. We quote at $2 to $2.05 per 100 lbs., Pittsburgh.

Spelter.—The demand is a little better, and prices are slightly firmer. We quote prime grades of Western Spelter at 5.90c., St. Louis, equal to 6.02½c., Pittsburgh.

Merchant Pipe.—The Eastern Oil Company, Buffalo, N. Y., is in the market for 46 miles of 10-inch and 70 miles of 12-inch Line Pipe for a gas line in West Virginia. The mills that make these sizes are now figuring on the contract and it will likely be placed this week. The demand for Merchant sizes continues quite active, and the mills are well filled up with tonnage to July 1 or longer. There is no improvement in prices, which remain at about 81 per cent. off the list on Steel Pipe to the large trade. Official discounts, which are shaded one point, are as follows:

Merchant Pipe.

	Jobbers, carloads.			
	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	%	%	%	%
⅛ and ¼ inch	72	56	69	53
⅜ inch	74	60	71	57
½ inch	76	64	73	61
¾ to 6 inches	80	70	77½	67½
7 to 12 inches	75	60	72½	57
Extra strong, plain ends:				
⅛ to ⅜ inch	65	53	62	50
½ to 4 inches	72	60	69	57
4½ to 8 inches	68	56	65	53
Double extra strong, plain ends:				
½ to 8 inches	61	50	58	47

Boiler Tubes.—The demand for Locomotive Tubes continues very active, with prices firm, but Merchant Tubes are dull and prices are being shaded. Discounts, which are more or less uneven, are as follows:

Boiler Tubes.

	Iron.	Steel.
1 to 1½ inches	41	46
1¾ to 2¼ inches	41	58
2½ inches	46	60
2¾ to 5 inches	53	66
6 to 13 inches	41	58

Iron and Steel Scrap.—While the demand for Scrap is only fair, the tone of the market is stronger than it was, particularly on Steel Scrap. On large inquiries it is probable our prices would be shaded about 25c. per ton. We quote: Heavy Melting Scrap, $15 to $15.25; Bundled Sheet Scrap, $14.75 to $15; Machinery Cast Scrap, $14.75 to $15; Old Steel Rails, short pieces, $15 to $15.25; long pieces, for rerolling, $15.75 to $16; Cast Iron Borings, $8.25 to $8.50; Old Car Wheels, $17.25 to $17.50; Old Iron Axles, $24.50 to $25; Old Steel Axles, $19.50 to $20, and Wrought Turnings, $12.50 to $13, all in gross tons, f.o.b. Pittsburgh.

Coke.—We note a more active demand for both Furnace and Foundry Coke, and prices are firmer. Strictly Connellsville Furnace Coke is quoted at $2.60 to $2.75 a ton, while the best grades of 72-hour Connellsville Foundry Coke are held at $3 to $3.10 at oven. Coke made outside the Connellsville region is offered at lower prices. A good many new ovens are being built in the Lower Connellsville region and some of them will soon be ready for operation. The output of coke last week in the Upper and Lower Connellsville regions was about 373,000 tons.

The Wilkoff Brothers Company, Youngstown, Ohio, dealer in Iron and Steel, has opened a branch office in room 1414, Park Building, Pittsburgh, with H. D. Stalnaker in charge. This company has also recently opened a branch office in room 403, Electric Building, Cleveland, Ohio.

The L. K. Hirsch Company, dealer in Steel Rails and Iron and Steel, with offices in the Frick Building, Pittsburgh; the Empire Building, New York City, and The Rookery, Chicago, has opened another branch office in the Arcade Building, Philadelphia.

Cincinnati.

FIFTH AND MAIN STS., April 25, 1906.—(*By Telegraph.*)

Pig Iron.—The general tone of the market during the past week has been fairly satisfactory, although the anticipated activity predicted on last week's inquiries failed to develop to any considerable extent. The greater portion of the business transacted during the week was in Northern Irons, and several large Malleable concerns were rather free buyers. These purchases were, for the most part, for third quarter delivery, although some are said to cover the last half of the year. One or two more large Malleable inquiries are now pending, which will probably be closed this week. The demand for Southern Iron is rather quiet, and there has been comparatively a small tonnage sold during the week in this territory. Prices, however, are said to be more firmly established than for some time, and $13.75 to $14, Birmingham, for No. 2 undoubtedly represent the exact quotations, although we hear of some spot iron that can be bought at figures considerably lower. It is generally expected that within the next week or two a more active buying movement will develop along all lines, and consumers cover for the remainder of the year. The lower grades are reported to be in fair supply and quiet. The local foundry trade is a little more active than a week since, and melters are fairly well pleased with the situation. Freight rates from Hanging Rock district are $1.15, and from Birmingham $3. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1	$17.25 to $17.50
Southern Coke, No. 2	16.75 to 17.00
Southern Coke, No. 3	16.25 to 16.50
Southern Coke, No. 4	15.75 to 16.00
Southern Coke, No. 1 Soft	17.25 to 17.50
Southern Coke, No. 2 Soft	16.75 to 17.00
Southern Coke, Gray Forge	15.00 to 15.25
Southern Coke, Mottled	14.50 to 14.75
Ohio Silvery, No. 1 (8 per cent. Silicon)	21.65 to 22.15
Lake Superior Coke, No. 1	17.90 to 18.15
Lake Superior Coke, No. 2	17.40 to 17.65
Lake Superior Coke, No. 3	16.90 to 17.15

Car Wheel Irons.

Standard Southern Car Wheel	$23.50 to $24.00
Lake Superior Car Wheel	22.00 to 22.50

Coke.—The market is easy, the demand is fair and supply plentiful. Shipments are prompt and satisfactory. We quote: Best brands of Connellsville and Virginia Foundry at $3, f.o.b. ovens.

Finished Iron and Steel.—The demand is excellent. Some of the mills are reported to be taking contracts for the latter part of the year. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.63c., with half extras; the same, in smaller lots, 2c., with full extras; Steel Bars, in carload lots, 1.63c., with half extras; the same, in small lots, 1.85c., with full extras; Base Angles, 1.83c., in carload lots; Beams and Channels, in carload lots, 1.83c.; Plates, ¼-inch and heavier, 1.73c., in carload lots; in smaller lots, 1.90c.; Sheets, 16-gauge, in carload lots, 2.15c.; in smaller lots, 2.70c.; 14-gauge, in carload lots, 2.05c.; in small lots, 2.60c.; Steel Tire, 1 x ¼ inch or heavier, 1.83c., in carload lots.

Old Material.—The market is said to be rather quiet, no transaction of any note being reported. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, $15 to $15.50 per net ton; Cast Borings, $8.50 to $9 per net ton; No. 1 Cast Scrap, $12 to $13 per net ton; Iron Rails, $22 to $22.50 per gross ton; Steel Rails, rolling mill lengths, $15 to $16 per gross ton; Relaying Rails, 56 lbs. and upward, $28 to $29 per gross ton; Iron Axles, $24 to $24.50 per net ton; Car Wheels, $18.50 to $19.50 per gross ton; Low Phosphorus Scrap, $18 to $19 per gross ton.

Walter H. Murphy and associates have organized, under the name of Union Iron & Steel Company, Cincinnati, Ohio, to take over the merchant iron business formerly operated by the Republic Iron & Steel Company, who succeeded the Mitchell-Tranter Company, at the northwest corner of Elm and Second streets, Cincinnati. Mr. Murphy's connection with the iron and steel industry dates back 22 years. He was connected with the Mitchell-Tranter Company for 14 years and with the Republic Iron & Steel Company for the past eight years, four of which were in the service of the company at Chicago.

Cleveland.

CLEVELAND, OHIO, April 24, 1906.

Iron Ore.—The movement of Iron Ore down the lakes has been rather slow the past week. The ground is still frozen in the upper lake territory and the Ore is being shipped to the head of the lakes slowly. Even then the loading of boats is accomplished with some difficulty. Under the circumstances shippers have been busy loading contract boats, all of which could not be supplied with cargoes. Wild chartering is therefore out of the question and will be until after the first of the month. The situation is somewhat simplified by the fact that a few of the larger fleets are not yet running all of their boats. It still remains an open question whether the lake docks will be tied up by the first of the month, owing to the lack of contract with the longshoremen. The meeting of the seamen and the longshoremen at Erie, Pa., during the week is so far without result. The seamen abandoned any claim to the mates' organization and then contested the right of the longshoremen to have the same organization in affiliation. The longshoremen argued before Samuel Gompers as arbitrator their right to use the words "transport workers" in the name of their organization, and Mr. Gompers took the matter under advisement. He will give his decision before the middle of May. It is possible that the docks will be tied up by a strike on May 1, since the longshoremen's contract with the dock managers expires at that time and the longshoremen refuse to work beyond the limit of their contract unless the mates are recognized. The control of the mates by the longshoremen, being contested by the other unions, the longshoremen are not in position to make any move until this question is settled. It has been hoped that a temporary arrangement would be made for an extension of the existing labor contract until after the decision was reached. But both sides are cautious about making advances and nothing has been done so far to avoid the shut down. Statistics have not yet been compiled showing the amount of Ore on Lake Erie docks at the opening of navigation. Conneaut reports that its supply has been practically exhausted, but the other docks have a more abundant supply. It is evident, however, that there is less Ore on hand this spring than at any time for years. At the same time the extraordinary activity of the furnaces is making heavy demands upon the existing supplies, and the time

is rapidly approaching when the new Ore will be much in demand. A strike tying up the docks, if delayed long, might have serious consequences. It is now considered possible that only one dock on Lake Erie would be able to operate, that being the Steel Corporation's dock at Conneaut, which is completely equipped with automatic machinery that can be run by skilled mechanics, whether connected with the longshoremen's organization or not. The Steel Corporation's boats are mostly manned by labor already tied up by contract or not affiliated with any union.

Pig Iron.—The buying of Pig Iron during the past week has been extremely heavy and prices have begun to stiffen under the movement. Orders of 1000 tons and over have been common. Prices for No. 2 Foundry have covered a wide range, but it is said now that $16.50 is the minimum, and some sales have been made on the basis of $13, Valley furnace, and better. The demand for Bessemer and Basic has been strong despite the apparent weakness in several lines of Finished Steel. The Coke market has held about steady, with a good demand.

Finished Iron and Steel.—With the exception of larger sized Angles and Sheets, the market in this territory is considerably easier than it has been. The demand for 6-inch Beams and Channels and upward has been exceedingly heavy, with good buying and lively specifications against existing contracts. The new capacity in this territory is now in operation, but the output is so much restricted by the scarcity of Steel that the effect on the market has hardly been felt. Angles 3 inches and under are easy, with deliveries possible almost immediately upon ordering. The market in some quarters is reported weak for Sheets, while in other quarters it shows strength. It seems that some of the jobbers who bought on the lower level price have been disposed to divide their profit occasioned by the advance with the consumer, resulting in a reduction of $1 a ton in some places. But the general situation is apparently strong. Sheet Bars have been so high that many of the smaller mills announce that unless prices advance before July 1 they will have to shut down. The business is strong out of stock, with prices unchanged at 2.15c. for No. 10 Black, 2.70c. for No. 28, pass cold rolled, and 3.70c. for No. 28 Galvanized. The market for Plates is easier all the way through. New orders are coming in slowly and in many instances mills are having difficulty to get consumers to specify against their old contracts. Recently some of the consumers in this territory ordered Plates from mills outside the territory at premium prices. These orders are now being canceled. The information is given out that the reason for doing so is that the Plates are obtained nearer home at association prices. The outside mills have wiped out their premium list and Plates are now generally on the association basis of 1.60c., Pittsburgh. Universal Plates are the strongest. Bars are reported easier and deliveries are prompt from all mills. The price holds as yet at 1.50c., Pittsburgh, for both Bessemer and Open Hearth. Bar Iron is quoted at 1.55c. to 1.60c., Youngstown.

Old Material.—The market holds about steady, with some fair buying by the mills. Prices are dictated more by the supply on hand than by the demand, since the receipts have been heavy. The following quotations represent dealers' prices to the trade, gross tons, f.o.b. Cleveland: Old Steel Rails, $14.50 to $15.50; Old Iron Rails, $22 to $23; Iron Car Axles, $17.50 to $18.50; Heavy Melting Steel, $14 to $15. Net tons: Cast Borings, $8.50 to $9; No. 1 Busheling, $12.50 to $13.50; No. 1 Railroad Wrought, $15 to $16; No. 1 Cast, $13.50 to $14.50; Stove Plate, $11; Iron and Steel Turnings and Drillings, $10 to $11.

Birmingham

BIRMINGHAM, ALA., April 23, 1906.

Pig Iron.—From the number of inquiries being received it would seem we are again on the verge of a buying movement similar to that of last fall. The inquiries do not appear to be from any particular class of melters, but rather indicate that all have been waiting until present contracts have nearly expired, hoping to be able to place new business at a better price. It is reported that contracts now being written are largely for third, with some for fourth quarter delivery, there being practically no Iron except off grades available for prompt shipment. No sales of large tonnage have been closed this week, but it is reported that several thousand tons have been taken by smaller buyers. The price of $14 for No. 2 Foundry which is being maintained by the largest producers will probably rule regardless of demand for some time to come, as at that figure the business is extremely profitable and experience has shown the folly of too high prices and the demoralizing effect of the inevitable reaction. Should a shortage of fuel necessitate the temporary banking of Northern furnaces, Alabama could supply a much larger quantity of Iron than is now being produced. Only about 27 of her 46 furnaces are in blast, but several additional stacks which are out undergoing repairs, etc., could be blown in on short notice, should the necessity arise.

No. 3 furnace of the Tennessee Coal, Iron & Railroad Company at Bessemer, which has been out of blast for several weeks undergoing general repairs, will be ready for the torch within a few days. Its capacity is about 200 tons per day.

Cast Iron Pipe.—Rush orders for Water, Gas and Soil Pipe have been received for shipment to California to replace that damaged by the recent earthquake, and the foundries here are giving these orders preference, the railroads promising to handle them through on record breaking time. The National Foundry Company, Brooklyn, N. Y., has representatives here investigating the situation with a view to locating a Soil Pipe plant, and it is understood has closed a deal for a site at North Birmingham. It is now operating a plant in Brooklyn, but will erect one here to take care of its Southern and Western trade.

Old Material.—Dealers report very little change in the situation this week. Some new business has been taken, but shipments are largely on old contracts. Good stocks are on hand and quotations are approximately as follows per gross ton, f.o.b. cars here:

Old Iron Rails	$17.50 to $18.00
Old Iron Axles	18.00 to 18.50
Old Steel Axles	16.00 to 17.00
No. 1 Railroad Wrought	15.00 to 15.50
No. 2 Railroad Wrought	14.50 to 15.00
No. 1 Country Wrought	13.50 to 14.00
No. 2 Country Wrought	11.50 to 12.00
Wrought Pipes and Flues	11.50 to 12.00
Railroad Malleable	11.50 to 12.00
Mixed Steel	9.50 to 10.00
No. 1 Machinery Cast	11.00 to 11.50
Stove Plate and Light Cast	9.00 to 9.50

The American Radiator Company has had representatives here during the past week investigating the advantages offered by the district for a radiator plant, and while no definite decision has been reached, it is very probable a branch will be located here.

C. H. Ackert, fourth vice-president of the Southern Railway Company, when in the city a few days since denied the report that the company contemplated building a $3,000,000 locomotive works in the South.

The German Iron Market.

An Improved Tone.

BERLIN, April 12, 1906.

The situation in the German Iron industry has grown decidedly clearer since my last report. Since the middle of March almost everything that has happened has tended to support the views of the optimists. The improvement cabled from the American market has confirmed the position of persons here who refused to attach any great importance to the weaker reports sent over in February and early in March. Then came the turn for the better in the English market, which only added to the confidence created by the better American reports. Upon the heels of all this came the pacific settlement at Algeciras, which has had a most favorable effect upon the prospects of the German Iron trade, though it is too early to report any actual results from the trade. All these foreign influences have had a most buoyant effect upon Iron and Coal shares. These have advanced very strongly for a week and are now considerably higher than a month ago, when the low water mark of the year was reached under the influence of the news then coming from America and England.

Increased Demand from Railroads and Shipyards.

Home events, too, since my last report, have been almost entirely in favor of the bulls of the stock market. Two or three days after that was written the Steel Verband made an increase of 5 per cent. in the allotment of Steel Rails and railroad material, structural forms and half-rolled Steel products. The increase amounts to about 260,000 tons a year. The reallotment was rendered necessary by the unusually large demand for Steel goods. Whether the increase will satisfy the requirements of the market seems more than doubtful, since the demands announced to the Steel Verband for this quarter have been—unofficially but credibly—reported to be more than 30 per cent. in excess of allotments. On March 22 the Verband held a meeting to decide whether an increase of allotments in other goods than those just mentioned was necessary. Various proposals in this direction were handed in by the member companies, but the Verband decided to grant an increase only in Car Axles, Malleable Blocks and similar goods; in these the allotments were marked up 10 per cent. The cause assigned for this action was the heavy requirements of the railroads for new cars and the great activity of work in shipyards.

In connection with this meeting the Verband gave out a report on the course of trade, which says that work on half-rolled material is very brisk and that the delivery of goods must continue at the present pace in order to meet the wants of consumers. Sales for the September quarter were declared open at unchanged prices and the export bounty on half-finished Steel used in manufacture was fixed at 5 marks the ton. The demand from abroad for half-finished material already ordered is extremely active, although in general a somewhat quieter tone prevails. Owing to the

extremely heavy demand at home for this class of goods, says the report, the Verband is making no offers abroad for the June quarter. Consumers, however, it is admitted, show some reserve in placing orders beyond the end of June. In railroad material, the report goes on, the works are well employed and the volume of orders on hand is very much heavier than last year. The quantities of heavy railroad material to be delivered within the next few months are very large, chiefly owing to the requirements of the Prussian railroads. Foreign business in Heavy Rails and other railroad supplies remains highly satisfactory, both as to quantities taken and prices paid. The active building operations in all parts of Germany are causing a good business in Structural Steel and specifications are coming in briskly, both from home and abroad. The foreign business in this class of goods will be fully as good as last year, and from some countries better.

German Statistics Are Favorable.

The latest statistics from the Iron trade, those for February, indicate that the boom still has life and go in it. The make of Pig Iron, indeed, was but 936,000 metric tons, as compared with 1,018,461 tons in January, but the reduction was due solely to the shortness of the month. The rate of daily production actually gained 575 tons over January; hence it is certain that the March figures will show a new record. The activity of the German Iron trade as compared with last year is indicated by the fact that the February figures denote an increase of almost 39 per cent. over February, 1905. The shipments of the Steel Verband, too, were heavier by above 36 per cent. than in February, 1905. That the movement is still upward is proved by an increase of 546 tons in the daily shipments over January, 1906. Moreover, the exports of Iron and Iron products in February, despite the shortness of the month, were the heaviest ever registered for any month. They reached 377,349 tons, which compares with 343,995 tons in the preceding month and 237,701 tons in February, 1905. Over the latter month the gain was nearly 59 per cent. For the five months ended with February exports gained 51 per cent. Iron imports in February amounted to 34,457 tons, or nearly double those of February, 1905.

Up to about two weeks ago it was reported that the American market was still actively buying Steel Rails and Structural Shapes in the Rhenish-Westphalian district, and this was also stated to be true of South American countries. Latterly less has been heard of takings for the United States and it is probable that the American demand has slackened, though none of the reports have asserted this. Among recent foreign orders may be mentioned 6000 tons of Rails and 10,000 tons of Ties for Turkish roads. The prices were $26.45 for Rails and $27.70 for Ties, delivered at Turkish seaport. The foreign market is still buying German Pig very actively. On the other hand, the foreign demand for Plates and Bars has grown lighter.

Prices.

The price situation has hardly undergone any change since my last report. Nevertheless, a few advances in special goods have been made. Steel castings have been raised and various articles of the hardware trade have been marked up from 5 to 10 per cent. The great staple goods, like Pig Iron and Steel, have been left unchanged and no further advances are regarded as probable for the rest of the year.

The Ore producers of the Siegen district have sold their entire output to the end of the year at unchanged prices. The great Iron companies of the Rhenish-Westphalian district are still trying to enlarge their Ore supplies. They have recently appealed to the State railroad authorities to give reduced rates on French Ores coming into their region. New mines have recently been opened in northern France producing richer Ores than the minettes of Lorraine, which are shipped into the Rhine country for mixing with Swedish Ores. The arrivals of these latter, too, are not of satisfactory volume, owing to the active competition of English and Belgian buyers and the inability of the new railroad from the Swedish Ore district to the Norwegian coast to haul more than a certain fixed quantity of Ores. It is regarded as highly doubtful whether the Minister will grant the reduction asked.

The strike of Coal miners in France has had a marked effect in increasing the demand for German Coal. The shipments to France have grown very heavy. However, the German miners have been agitating against permitting these shipments, so far as they involve any overtime work. It is reported that they are keeping a guard at the shipping points to count the cars marked for France, and the miners' organizations have been given the order not to work overtime to meet the French demand, as this would be a serious blow at the interests of the striking French miners. The movement of Coal is now so heavy that the railroads are again unable to supply the cars called for, the deficiency amounting on some days to a carrying capacity of 30,000 tons. Under these circumstances it was apparently not found necessary to restrict allotments on April 1, as was feared several weeks ago.

The demand for Coke is still growing and the Syndicate increased allotments this week by 475,000 tons. The output of Coke for February was 1,533,000 tons, as compared with 655,500 tons in 1905, when the Coal strike of that time reduced production. The demand for Coke in the Rhenish-Westphalian district is described as now being enormous and none of the furnaces apparently have any considerable supplies in stock. Many Coal companies are building new Coke ovens.

New York.

NEW YORK, April 25, 1906.

Pig Iron.—There is less pressure for Iron on the part of Iron founders, and the market presents a somewhat ragged appearance. Thus in the territory west of the Hudson the competition of Buffalo is being felt, and the same state of affairs continues in New England. In the latter section the appearance of a Tennessee furnace some ten days since has created somewhat of a sensation. A round block of Iron has been placed by a New Jersey stove foundry, Virginia, Lehigh and Schuylkill participating. A lot of 5000 tons of Iron has been purchased by a Cast Iron Pipe interest, and negotiations are pending for 5000 tons of Basic Pig for a New Jersey Steel foundry. We continue to quote Northern No. 1 Foundry, $18.50 to $19; No. 2 Foundry, $18 to $18.75; No. 2 Plain, $17.50 to $18. Southern Iron is quoted at $18.50 to $18.75 for No. 1 Foundry, and $17.50 to $18 for No. 2.

Steel Rails.—The pressure for Rails to be delivered this year has prompted some roads to ask for bookings in the early part of 1907, and the manufacturers have accordingly opened their books and decided on the price for next year, which will be $28, as at present. Deliveries this year on orders hereafter taken must practically all come through increases in expected outputs of the mills. Among the orders of the week the definite booking of 63,000 tons of Open Hearth Rails for 1907 for the Southern Railway, by the Tennessee Coal, Iron & Railroad Company, is the largest. The Seaboard Air Line has ordered 14,000 tons additional; the Lima & Toledo Traction, 13,000 tons; the Pacific Electric, 2000 tons, making its total 14,000 tons; the Indianapolis & Western, 2200 tons; the Bangor & Aroostock, 2000 tons; the Toledo & Ohio Central, 1000 tons; the B. & O., 3100 tons; the Hocking Valley, 1000 tons.

Structural Steel.—At a conference in New York the past week, at which all the Structural mills were represented, the situation was canvassed and the conditions, it was agreed, were exceedingly promising. No change was made in prices. Specifications are coming in well, and there has been more activity in the general run of trade in the past two weeks than for some time. The American Bridge Company estimates that a total of about 50,000 tons will have been reached by the close of April, this including a number of contracts practically allotted some time ago, but not formally closed. The Hamburger Building, Los Angeles, Cal., requiring 5000 tons of Steel, went to the Llewellyn Iron Works, a local firm, which has not yet let the Steel erection. Among bridge business taken in the week are a contract for 300 to 400 tons for the Maine Central, and one for 200 tons for the Atlantic Coast line. It is expected that the proposed extension of the New York Subway to 240th street will require about 6000 tons of Steel. Among local fabricating and erecting firms there is no knowledge of any Steel having been ordered for San Francisco rebuilding operations, and in the nature of things some time must elapse before any such business will be done. We quote on mill shipments, f.o.b. New York: Beams, Channels, Angles and Zees, 1.84½c.; Tees, 1.89½c.; Bulb Angles and Deck Beams, 1.99½c. Beams, 18 to 24 inch, 0.10c. extra; Angles over 6 inches, 0.10c. extra.

Bars.—The Eastern Bar Iron manufacturers held another meeting in this city last Thursday, at which trade conditions were reported to be steadily improving, and some disposition was shown to advance prices. It was, however, decided to reaffirm the basis of 1.50c., Pittsburgh, or 1.64½c., New York, as the absolute minimum. The large mills are standing quite firmly at 1.69½c., claiming that the strength of raw materials justifies it. Steel Bars are quoted at 1.64½c. to 1.74½c., tidewater, according to deliveries and specifications.

Plates.—Trade continues light, the demand being better for Universals than for Sheared Plates. Manufacturers met in this city last Thursday and decided to make no change in prices. Quotations are firmly maintained as follows, at tidewater: Sheared Tank Plates, 1.74½c. to 1.84½c.; Flange Plates, 1.84½c. to 1.94½c.; Marine Plates, 2.14½c. to 2.24½c.; Fire Box Plates, 2.24½c. to 2.60c., according to specifications.

Cast Iron Pipe.—It is understood that the contractors who were awarded the work of laying 25,000 tons of 48-inch Water Pipe for the city of New York last week have purchased the Pipe from the United States Cast Iron Pipe & Foundry Company. On May 2 bids for 4000 tons for Brooklyn will be opened. No other large work has been advertised for in this locality, but general buying is as lively as

ever. We quote $30.50 per net ton for carload lots of 6-inch at tidewater.

Old Material.—The market is much better and dealers are now confident that the demand will shortly be all that could be desired. Steel Scrap has been taken in round lots at higher prices, and this class of stock is now actually growing scarce. Rolling mill stock is fairly active and holders willing to take recently prevailing prices can easily make sales. Cast Scrap continues in good demand. Approximate prices per gross ton for New York or vicinity are as follows:

Old Iron Rails	$20.00 to $21.00
Relaying Rails	25.50 to 26.00
Old Steel Rails, rerolling lengths	16.50 to 17.50
Old Steel Rails, short pieces	15.50 to 16.00
Heavy Melting Steel Scrap	15.50 to 16.00
Standard Hammered Iron Car Axles	24.50 to 25.50
Old Steel Car Axles	20.00 to 21.00
No. 1 Railroad Wrought	19.00 to 20.00
Iron Track Scrap	16.50 to 17.50
No. 1 Yard Wrought, long	17.00 to 18.00
No. 1 Yard Wrought, short	15.00 to 15.50
Wrought Pipe	13.50 to 14.50
Light Iron	10.00 to 10.50
Cast Borings	9.00 to 9.50
Wrought Turnings	12.50 to 13.50
Old Car Wheels	17.00 to 18.00
No. 1 Machinery Cast	15.00 to 16.00
Stove Plate	11.50 to 12.00
Grate Bars	10.00 to 10.50
Malleable Cast	16.50 to 17.50

It is possible that very little can be had at the inside figures quoted above.

Metal Market.

NEW YORK, April 25, 1906.

Pig Tin.—Again all records for high prices have been broken both in London and in New York. Spot Tin in London has advanced from the level reached a week ago of £177 5s. to to-day's closing price of £181 15s. Spot prices in New York advanced from 38.85c., which was reached last Wednesday to 29.10c. on Monday of this week. On Tuesday a sharp advance was made, Tin selling at 39.50c. to 39.65c. To-day's prices are still higher at 39.80c. Business seems to keep up steadily, and consumers continue to buy in the usual quantities. As far as future trading is concerned, the market is very dull, and there is little or no business in afloats. The market is under a nervous tension, quickly responding to any rumors, but consumers are naturally buying from hand to mouth only. It has been pointed out that the present corner in London will undoubtedly extend some time into May, and it is not believed that any sharp reaction will follow. Men who are conversant with the situation express the belief that prices may go still higher, as the present high level does not appear to be restricting consumption at all. Already these high prices have been responsible for advances in quotations for Tin Plate both in the United States and in Europe. Stocks of Tin in this country are fair, the arrivals aggregate 3832 tons so far this month, and the afloats are 1233 tons.

Copper.—The market is firm, but prices are no higher, and we continue to quote Lake at 18.62½c. to 18.75c.; Electrolytic, 18.25c. to 18.50c.; Casting Grades, 18.12½c. to 18.25c., delivered 30 days. For prompt shipments in May and June advances above these prices of probably ⅛c. would be demanded in some quarters. Some of the producers of high grade lake are only selling on a basis of 18.75c. for all deliveries this side of September. The European market is slightly firmer for future shipments and Best Select grades. Spot prices are unchanged at £85 10s., and future are now held at £84, while Best Select is £89 5s. The foreign business is keeping up in good volume. The German consumption of foreign Copper for the months of January and February, 1906, as compared with the same period of time during 1905, given by L. Vogelstein & Co., agents for Aron Hirsch & Son, Halberstadt, Germany, is as follows in gross tons:

	1906.	1905.
Imports	22,770 tons.	15,884 tons.
Exports	2,509 tons.	1,937 tons.
Consumption	20,261 tons.	13,947 tons.

Of the above, 16,968 tons were shipped from the United States. The total exports so far this month are small, aggregating 10,908 tons. The strike in the Anthracite regions may have some favorable bearing on the Copper situation, as it is reported that many of the Coal miners are now seeking employment in the lake regions. It is well known that Copper producers are anxious to stimulate production as far as possible, and they are giving employment to such competent miners as apply. It has been pointed out that if production during 1905 increased 45,000 tons, as is quite probable, and the smaller exports and larger importations have resulted in additional supplies of approximately 45,000 tons available for American consumption, there is now nearly 8000 tons per month more Copper for use in this country as compared with a year ago. This figure is approximately an increase of 40 per cent., and corresponds very closely with the increased consumption of Pig Iron.

Lead.—The market is stronger and Lead in New York is held at 5.50c. to 5.65c.; in St. Louis at 5.40c. to 5.50c. The American Smelting & Refining Company on the 20th advanced prices from 5.35c. to 5.50c. for shipment Lead in 50-ton lots. The demand is said to be considerably better, but there is a good supply, as is borne out by the fact that the principal producer is shipping promptly.

Spelter.—Prices are slightly firmer, but business is very dull. In New York round lots are quoted at 6.05c. to 6.15c.; in St. Louis 5.95c. to 6c. The London market is a trifle firmer at £26 10s.

Antimony.—The London holders of Antimony have made another advance and now quote Cookson's at £100. In this country Cookson's and Hallett's are held at 21c. to 22c.; other grades at 20c. to 21c. The present high prices are undoubtedly likely to prevail for a season, but there is no apparent reason why they should continue in force for any length of time. In fact, it is believed that prices will be lower within the next six months.

Quicksilver.—The old price of $40 per flask of 75 lbs. in 100-flask lots continues in force. It has been stated by representatives of California Quicksilver mines that the seismic disturbances in California will not affect this market.

Aluminum.—There is an active demand, but the principal producer is unable to supply it promptly and no relief can be found from European makers. The shortage is so apparent that Scrap Aluminum has advanced sharply and is now in excellent demand. For ton lots of No. 1 Ingots 35c. is asked.

Nickel.—The price remains unchanged at 40c. to 45c. for large quantities; 50c. to 60c. for smaller lots.

Tin Plate.—There is an excellent demand for Coke Plates for canning purposes, and the fact that the leading interest has been compelled to work its Billets into other channels has resulted in more or less irregularity as far as shipments are concerned. The price is unchanged at $3.70, f.o.b. New York, and $3.60, f.o.b. Pittsburgh, for 100-lb. IC Coke Plates. In Swansea Welsh Plates have advanced 4½d. and are now held at 12s. 9d. This advance is attributed to the higher prices of Pig Tin.

Old Metals.—Holders of Old Metals are securing better prices and in some lines, notably Copper, Brass and Aluminum, there is a particularly active demand. We quote dealers' selling prices as follows:

	Cents.
Copper, Heavy Cut and Crucible	18.00 to 18.25
Copper, Heavy and Wire	17.50 to 17.75
Copper, Light and Bottoms	15.75 to 16.25
Brass, Heavy	12.00 to 12.75
Brass, Light	10.50 to 10.75
Heavy Machine Composition	16.50 to 16.75
Clean Brass Turnings	10.25 to 10.75
Composition Turnings	13.00 to 13.25
Aluminum Scrap	26.00 to 28.00
Lead, Heavy	5.00 to 5.25
Tea Lead	4.85 to 4.90
Zinc Scrap	4.90 to 5.10

Iron and Industrial Stocks.

NEW YORK, April 25, 1906.

The stock market sharply declined on Thursday and Friday, as a result of the San Francisco calamity. Some improvement occurred on Saturday, especially in United States Steel stocks, but the market has since then been quite unsettled, as liquidation is feared in view of the pressure of funds. The highest and lowest prices on iron and steel stocks from Thursday of last week to Tuesday of this week were as follows: Car & Foundry common 43⅜ and 40¾; Locomotive common 68¼ and 63½; Steel Foundries preferred 45¼ and 43⅞; Colorado Fuel 61¾ and 57; Pressed Steel common 55¾ and 50¾; Railway Spring common 55½ and 51½; Republic common 31¼ and 28¼, preferred 102¾ and 99; Sloss-Sheffield common 80⅞ and 76½; Cast Iron Pipe 50⅛ and 47½; Steel common 43⅞ and 41⅝, preferred 109 and 106¼. Last transactions in active stocks up to 1.30 p.m. to-day are reported at the following prices: Can common 7¾, preferred 61½; Car & Foundry common 42, preferred 102; Locomotive common 65, preferred 113½; Steel Foundries common 11¼, preferred 44⅝; Colorado Fuel 58¼; Pressed Steel common 53½, preferred 98; Railway Spring common 53¼; Republic common 29¼, preferred 101; Sloss-Sheffield common 80; Tennessee Coal 145¼; United States Cast Iron Pipe common 49½, preferred 94⅜; United States Steel common 42½, preferred 108.

In connection with the recent offer by a banking house of $100,000 out of the $600,000 of 6 per cent. cumulative preferred stock of the American Rolling Mill Company, Middletown and Zanesville, Ohio, the following statement is made concerning earnings: "The net earnings for the eight months ending February 28, 1906, have been $107,360, and we believe that from now on the net earnings per month will be at least double what they were prior to January 1. Six per cent. on the preferred stock is only $42,400."

Dividends.—United States Steel Corporation has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable May 31.

Shelby Iron Company has declared a dividend of 5 per cent., payable May 15.

The Machinery Trade.

NEW YORK, April 25, 1906.

The past week has been one of exceeding activity in machinery circles, the demand for practically all classes of machine tools have been very heavy. The buying movement appears to take in practically every branch of business using mechanical equipment, though steel, mining and automobile manufacturing companies were conspicuous among the larger purchasers. Some large orders for power plant equipment were placed. Inquiries for machine tool equipment were probably greater than for some time, and some of those before the trade are for the heaviest tools. In addition to the railroad list, just issued, inquiries are being received from companies which will very shortly come into the market for large quantities of machinery. Many of the more important inquiries are from companies who are planning large extensions or the building of new plants, and judging from the number of the latter projected for this summer there will be a continuous volume of inquiries that will ripen into orders. Deliveries are not only not easing up, but on certain machines are being extended. Reports from both the West and New England indicate that the same good conditions prevail as in this territory.

The question of delivery is likely to play an important part in the re-establishment of the machinery industry in San Francisco. There were many agencies in that city where stocks of tools were probably wiped out in the conflagration and it will be hard for them to get new stocks of tools. Manufacturing plants will also probably find it difficult to secure the necessary equipment.

There is considerable talk in the trade of a further increase in prices on some lines of tools. This question will probably come up at the meeting of the National Machine Tool Builders' Association, to be held at Atlantic City, N. J., on Tuesday and Wednesday. At a meeting of the Upright Drill Committee, held in Chicago last Friday, a 10 per cent. advance on upright drills was made.

Southern Railroad Machine Tool List.

One of the most important and largest railroad lists submitted to the trade for some time has just been received by machinery houses from the Southern Railroad, whose purchasing agent is located in Washington, D. C. The list covers about 62 machine tools, a great many of them of the heaviest type. The average value of the tools is said to be over $1000, and it is estimated in the trade that the list covers tools amounting to between $60,000 and $75,000. No information is given as to the shops for which these tools are to be bought, but it is thought that many of them will be installed at the company's Lonsdale shops, where work has just been started on the construction of new buildings. It is the intention to have these additional buildings erected and ready for the equipment by September 1, if possible. About the middle of last month the Southern Railroad issued a small list of machine tools, which were purchased a few weeks ago. The company has in contemplation extensive improvements to be made this year, among which is the erection of large shops at a point in the South, a site for which has not yet been selected.

New Structural Steel Plant.

The Seaboard Bridge & Structural Steel Works, which has been incorporated with a New Jersey charter which permits it to manufacture structural steel, alter and repair bridges, trestles, viaducts and aqueducts of structural steel, is making plans to build a plant in Jersey City, and work on the structure will begin very shortly. The plans call for a building of concrete and steel, 100 x 300 feet, and a frame office structure about 40 x 60 feet. Robert Giles of 5 East Forty-second street, New York, who was formerly connected with the National Bridge Company, is one of the organizers of the corporation, and it is the intention of the company to manufacture structural steel in odd shapes and sizes, in order to compete for pick-up trade in the metropolitan district. The organizers of the corporation have found in their experience in the structural steel business that there is a large and fairly steady demand in and about Manhattan for quick deliveries of structural steel for imperative repairs, and for work that must, through some cause or another, be rushed. Accordingly, they intend to maintain a plant which will be in readiness to fill hurried orders, and the plant will be kept busy, when urgent demands are not made on its resources, in turning out structural steel to be kept in stock. Although this is the main object of the organization of the company, it is understood that the incorporators do not intend to confine themselves to that class of work exclusively, and it is highly probable in the near future they will branch out in other lines, and even the present arrangements will enable them to compete for such work as building small bridges and the like. No equipment for the plant has been purchased as yet, and the question of power has not been decided upon. The company intends, however, to install its power in the main structure, and it is expected that considerable equipment in that line will be needed. The buying will in all probability be done in New York, and it is expected the company will come into the market for its requirements very shortly. The company does not intend to install a rolling mill, but will purchase its steel from other parties and will fabricate it at the plant. The plans for the buildings have been drawn by Architect George Nichols of 41 Wall street, and the main structure will be of substantial construction and pleasing appearance. The incorporators are Elliott C. Smith of the firm of Norton & Smith, 33 Wall street; John J. Ginnane and Leonard M. Burns.

Steel Companies Buying Heavily.

The interests of those in the trade who follow the doings of the big steel interests closely turned last week to the Bethlehem Steel Company, which has for some time been considering proposals for the equipment of the plant which is to be erected for producing the new forms of structural steel under the patents purchased by Charles M. Schwab in Europe. A contract was closed during the week for a 40-inch blooming mill of special design, which it is said will be something specially fine in that line. It is said in the trade that the company has plans for a large condenser plant, and perhaps it may come into the market for another mill. The contracts for the furnaces for the new plant have not been let as yet, and it is declared in the trade that the expenditures in that line will reach a large figure. The company has closed for its conveying machinery. The details for the special equipment are in the hands of Henry Gray, 68 William street, who is the inventor of the method of manufacturing structural steel adopted by the company.

The Baldwin Steel Company, 106 John street, New York, is still purchasing equipment for its new plant to be located at Charleston, W. Va. The plans for the plant have been completed, and they provide for a main building about 120 x 400 feet and a power house, 40 x 80 feet. About 1000 horse-power will be used in the plant, which will probably be electric. The requirements also include two rolling mills, a 10-inch mill and a 13-inch mill, as well as two crucible steel furnaces and 11 heating and annealing furnaces. The company now maintains a plant at Cold Spring, N. Y., and the equipment there will be moved to West Virginia as soon as the new plant is completed. The company has about 12 acres of property at its new site, and it has plenty of room for enlarging.

Westinghouse, Church, Kerr & Co., 10 Bridge street, New York, is getting bids on some equipment for the Atha Steel Casting Company, which was recently organized to take over the firm of Benjamin Atha & Co., at Newark, N. J., as a subsidiary interest of the Westinghouse enterprises. Plans already prepared for enlargements at the Atha plant include a new building, 203 x 209 feet, and it is expected that the plant will be further enlarged. There are no inquiries from Westinghouse, Church, Kerr & Co. for power for the new plant, but the engineering firm is getting bids on cranes and other equipment. It is very probable that later on the trade will hear of further enlargements, as it is said to be the company's intention to double its present output.

Other New Industrial Plants.

A large tract of land has been purchased at Wattsessing, a section of Bloomfield, N. J., by the Sawyer-Man Electric Company, 522 West Twenty-third street, New York, for the erection of a plant which it is expected will be used for the manufacture of incandescent electric lamps. Westinghouse, Church, Kerr & Co., 10 Bridge street, have secured a blanket contract for erecting and equipping the plant, which will consist of a main building about 100 x 500 feet and three stories in hight, and another structure, 75 x 150 feet. The Westinghouse, Church, Kerr contract calls for the plant and entire equipment. From all accounts, no inquires have been sent out as yet for the machinery.

The necessity for a much larger plant to take care of its business, which has more than doubled during the past year, has caused T. Shriver & Co., New York, to purchase a site in Harrison, N. J., where it will erect a new plant, with about double the present capacity. The property purchased consists of 106 lots on Hamilton and Schuyler avenues. On this ground the new plant will be erected, and the main building, covering the foundry, machine shop and other departments, will be 140 x 600 feet. Plans have not been completed for the entire plant. The machinery in the present plant on Fifty-sixth street, New York, will be moved into the new structures when they are completed, but the company will have to purchase considerable new machinery in addition to what it already has.

The Merrill Drop Hammer Company, Brooklyn, N. Y., has inquiries in the market for some machinery, which is probably required for the new plant the company is to erect on recently purchased property alongside the tracks of the Long Island Railroad. The plans for the new shops have not yet been fully perfected.

A smelting plant to cost in the neighborhood of $5,000,000 is to be erected by the American Smelting & Refining Company in the vicinity of San Francisco, and plans are already being drawn by the engineers of the company. The corporation has plans under way for other improvements in the West, and it is highly probable that before long a number of these projects will come to a head. It is said in the trade

that the San Francisco fire will not alter the company's plans, according to information given out in answer to inquiries, and no doubt before long bids will be taken on a large amount of equipment for two or more smelters in addition to the San Francisco project. The other plans are in the preparatory stage and nothing can be made public about them as yet, but it is conceded that the company intends to strengthen its Western holdings largely.

The new foundry building of the Frazer & Jones Company, Syracuse, N. Y., will be of steel construction and in all probability by May 1 the plans will be ready to be submitted to contractors for bids on construction. The plans will be submitted to contractors wishing to bid on the building, and there will be no objection to any form of steel construction so long as the desired results are obtained and the work passes the inspection of the company's engineer. Bids on reinforced concrete construction will also be received. As to the power equipment, it has not yet been decided what horsepower will be required, nor has it been decided whether the foundry will be equipped with steam or electric power. The other machinery equipment will consist of molding machines, blowers, tumbling barrels, core ovens, &c.

Extensive additions are to be made to the plant of the De Laval Separator Company at Poughkeepsie, N. Y. The company, whose main offices are at 74 Cortlandt street, New York, is preparing plans to add 20,000 square feet of floor space to its plant by building nine sections of sawtooth one-story modern manufacturing buildings, 180 feet long in all. The De Laval Company, which manufactures cream separators and other dairy appliances, has been growing rapidly, and the additions will be used to manufacture parts of its machines which have heretofore been imported from Sweden. It is expected that the additions will be completed by fall and the company will require quite some machinery equipment, especially some special tools to be used in the new work. It is hoped that the machinery can be obtained in time to commence active manufacturing operations in the new additions before the first of next year. The company recently added a handsome brick office structure to its plant, and Oscar Bernstrom, manager of the corporation, divides his time between Poughkeepsie and the New York office. He will have charge of purchasing the machinery equipment that will be needed. About 350 men are employed at the plant at present and 150 separators, comprising one carload, are turned out every working day. It is expected the machinery will probably be purchased in the Metropolitan district, as the considerable buying that the company has done in the past has been transacted at the New York offices.

The Proctor & Gamble Company, soap manufacturer, is preparing to erect a large plant at Mariners Harbor, Staten Island, and preliminary inquiries which have been made in the trade indicate that the company will in all probability purchase a large amount of machinery in the New York market. The company has offices at 5 Worth street, New York, but its main offices are in the United Bank Building, Third and Walnut streets, Cincinnati. It is thought that a large amount of power will be used in equipping the new plant, which will include a main structure, 100 x 658 feet, and three other buildings, 100 x 400 feet, 80 x 142 feet and 50 x 208 feet, respectively. From all indications the company has purchased nothing as yet, but the contract for the buildings will be let shortly and after that it is expected the machinery details will be looked after.

The leather plant of Moses Straus & Son, at Vesey and Herman streets, Newark, N. J., is to be enlarged by an addition which will cost about $100,000. The plans, which are being prepared by Architect William E. Lehman, include a four-story reinforced concrete tan and beam house, 62 x 106 feet; two-story japan shop, 40 x 100 feet, and a one-story brick boiler and engine house, 40 x 80 feet, besides an addition to the office building, 25 x 100 feet. The plant will be equipped with large high pressure boilers, high speed engine of about 150 kw. and heavy freight elevator. It is expected that the company will also come into the market for some small cranes for handling hides in the vats, as well as other machinery equipment. Runyon & Carey, 122 Market street, Newark, have charge of the power plant and machinery details.

The Connersville Blower Company, Connersville, Ind., with sales office at 95 Liberty street, New York, has added to its plant a new department, which it is equipping for the manufacture of a line of small blowers to be operated either by hand or power, in sizes to deliver 173, 280 and 573 cubic inches of air per revolution. The company expects to be ready to put these blowers on the market about May 1.

Lackawanna Power Specifications.

Inquiries were sent out last week by G. F. Wilson, purchasing agent for the Delaware, Lackawanna & Western Railroad, who has an office at 26 Exchange place, New York, for equipment to be used in fitting out the power plant for the new terminal at Hoboken. The plant is intended to supply power for the big modern terminal which the company is having erected at that point, and it will be of about 1000 horse-power. It was thought some time ago that the company would probably construct a plant large enough to furnish power for electrically operating the company's road from Hoboken to Morristown, N. J., but the inquiries do not indicate that the plant will be anything near that size. The new terminal will extend 600 feet along the river front and about 4500 tons of structural steel will be used in its construction. The list includes boilers, engines, generators and other power plant accessories, and it is expected that there will be inquiries also for ventilating and other apparatus. The terminal will cost about $3,000,000, and work has been already begun. As yet no hint has been given the trade as to when the plans for electrifying the road will come to a head, but it is conceded that the company will begin that work just as soon as the grade crossings in the Oranges are done away with. That work is being pushed rapidly, and it is thought it will be completed during the summer.

The trade is anxiously awaiting the decision of the engineers in charge of the details for the erection of the power plant to be built by the New York, Westchester & Boston Railway Company, 30 Broad street, New York, as to whether the company will let out the work of furnishing and erecting the equipment as a blanket contract or award the contracts to various bidders. All the bids for equipping the big power plant are in and it is expected that very shortly the company will make a decision. Even though the entire contract is let to one firm, there will still be some fine pickings for some branches of the trade, as the list includes 24 water-tube boilers, one 60-ton electric traveling crane, six horizontal boiler feed pumps, three surface condensers, three steam-turbo alternators and other minor equipment, and it is hardly probable that any one firm will be able to furnish all the requirements from its own plants. The company has not as yet completed its plans for the machine shop and repair plant, which it is expected will be built adjacent to the power house, but the engineers are at work on the plans and it is expected that they will be developed very shortly. The City & County Contract Company, which also has offices at 30 Broad street, will do all the buying for the company, and when the plans for the machine shop and other buildings are completed it will undoubtedly send out inquiries in the Manhattan district.

The New York Edison Company, 55 Duane street, has inquiries out for the machinery equipment for three substations to be erected in Manhattan. The plans have been drawn for the structures and it is expected that the machinery will be purchased very shortly. One of the stations is to be built at 155 and 157 East Sixtieth street, on a plot of ground 40 x 100 feet, while another is to be built at Thirty-ninth street and the third will be erected on Water street. The specifications for the machinery equipment have been sent out from the Duane street office of the company and the list, it is understood, covers a considerable amount of equipment.

The Borough of Atlantic Highlands, N. J., has awarded contracts for the equipment to be used in remodeling the electric light and water plant of the municipality. The contract for two 150 horse-power cylinder engines was awarded to the Ideal Engine Works, through its New York office, 11 Broadway, while the Stanley G. I. Electric Company secured the contract for the electric lights and other electrical equipment. A contract for an air compressor capable of delivering 185 cubic feet of free air per minute at a working pressure of 60 pounds to the square inch went to the International Pump Company, which will furnish a Laidlaw-Dunn-Gordon compressor.

Catalogues Wanted.—The Price-Evans Foundry Company, Chattanooga, Tenn., is desirous of securing catalogues and prices on lathes suitable for facing cast iron columns.

Chicago Machinery Market.

CHICAGO, ILL., April 24, 1906.

At the meeting of the Upright Drill Committee of the National Machine Tool Builders' Association held here on Friday, April 20, a horizontal advance of 10 per cent., immediately effective, was made. Practically all of the drill manufacturers attended the meeting, regardless of affiliation with the National Association, and it is probable that some of the tool builders not heretofore having membership in this organization will join at the next meeting. Advances in all machine tools but upright drills, ranging from 5 to 20 per cent., were made shortly before the first of the year, but no increase in this line could be forced owing to the refusal of several of the largest builders to agree to higher quotations. In the meantime raw material has increased in cost and higher wages in many sections are being paid. Owing to the keen competition among radial drill manufacturers prices have constantly been kept on a low basis, and the advance is considered extremely conservative under prevailing conditions. Some of the manufacturers in attendance reported that they are unable to promise deliveries on new orders in less than six months, and three months' shipment is the exception rather than the rule. The foreign trade during the past six months has also been very heavy, and Western manufacturers continue to make carload shipments to sea-

board points for reconsignment to foreign countries. In this connection it is interesting to note that comparatively few new drills have been designed and put on the market during the past nine months, manufacturers generally having been too busy with staple tools to introduce new lines.

Illinois Steel Company's New Shops.

The first of the new buildings to be erected at Gary, Ind., where the Indiana Steel Company will build its new steel plant, include a machine shop, foundry and pattern shop. These are to be rushed to completion, so that their facilities will be available when construction work on the four blast furnaces, ore docks and ore and coke bins is begun. Plans for this work, which will also include an extensive open hearth plant and standard section rail mill, have not yet been completed. Machinery requirements for these shops have not been promulgated, but it is necessary that they be in the hands of manufacturers and dealers within the next few weeks if deliveries are desired during the summer months. Inquiries have been made for the early delivery of punches and shears to be installed in the new light rail mill at South Chicago, but as yet no contracts have been let. Other additions are being made at the South Chicago plant of the Illinois Steel Company, as follows: One-story boiler house, 55 x 160 feet, and one-story addition to electric station, 90 x 112 and 54 x 60 feet; one-story blast furnace cast house, 68 x 110 feet; one-story steel boiler house, 71 x 89 feet. A new two-story office building, 40 x 150 feet, will also be built. The contracts for the 40 boilers to be installed in this steam plant were awarded some time ago and announced in these columns.

The Western Steel Car & Foundry Company, with offices in the Old Colony Building, Chicago, one of the pioneers in the steel car manufacturing industry in the West, has made plans for increasing its output nearly 75 per cent. The works of the company are at Hegewisch, Ill., and in addition to the production of steel cars the output includes wooden freight cars, malleable castings, forgings, &c. The site covers a ground area of about 110 acres. Extensions immediately in hand, which involve an expenditure of $250,000 for buildings and machinery, consist principally of additions to the steel car shop on its west end and south side. This building is at present approximately 104 x 600 feet, and the extension at the west end, which will augment the steel car capacity, will be one story in hight, 131 x 504 feet. The new wing to adjoin the southern side of the building will be 60 x 593 feet, one story, and will be utilized in the manufacture of trucks. Equipment for these additions has practically all been purchased, chiefly from local interests. A large order for pneumatic machinery went to the Chicago Pneumatic Tool Company, while some of the crane equipment will be supplied by the Whiting Foundry Equipment Company, Harvey, Ill. The Westinghouse Electric & Mfg. Company will furnish several steam turbine units. Other machine tool equipment went to local houses or representatives of large Eastern machine tool builders. Installation was recently made at the plant of a new electric transfer table purchased from George B. Nichols. The plant is provided with excellent railway facilities, connecting with the tracks of the Chicago & Western Indiana Railroad. It is expected to have these improvements completed by July 1 and a capacity will then be provided of 70 cars a day.

The Union Malleable Iron Company, East Moline, Ill., has let contracts for extensions to its plant, which include an addition to the foundry, 152 x 234 feet; addition to the annealing house, 102 x 133 feet; new core building, 57 x 220 feet; three 15-ton furnaces and eight 25-ton annealing ovens. The company expects to increase its power plant by adding two 150 horse-power water tube boilers and a 300-kw. direct connected alternating generator.

The Vulcan Iron Works, Seattle, Wash., will build a large modern plant during the coming summer, consisting of machine shop, blacksmith shop, pattern shops, foundry, rolling mill, &c. Quite a number of machines have already been purchased, but the company is still in the market for a large quantity of equipment as well as building materials.

The Western Drop Forge Company, Marion, Ind., has been incorporated and organized to succeed the Co-operative Machine & Boiler Company, whose plant it will absorb. The product of the company includes, besides drop forgings, gas and oil tools. New machinery has been purchased from E. W. Bliss Company, Brooklyn, N. Y.; Toledo Machine & Tool Company, Toledo, Ohio, and the Vonnegut Hardware Company, Indianapolis, Ind. The company is considering the installation of electric motors for power purposes, but up to this time has not placed orders for power equipment. Officers of the company are Thomas C. Hawkins, president; Andrew Schick, vice-president; Laird H. Seiberling, treasurer and general manager, and Chas. Schick, secretary.

The Berres-Gahl Mfg. Company, West Bend, Wis., whose plant was partly destroyed by fire a short time ago, will build a new foundry and machine shop, 60 x 200 feet. The company will require several new lathes, a miller, shaper, cupola, sand blast, blower, crane and other machinery. No contracts have been let as yet.

The Washington Iron Works Company, Seattle, Wash., has under way the construction of a new boiler shop, 60 x 185 feet, in which will be installed a traveling crane, hydraulic riveter, splitting shears and a pneumatic flue welder. A 10-ton electrically driven Whiting jib crane is being installed in the foundry, and a number of recent installations in the machine shop include a 3-inch Jones & Lamson flat turret lathe and a 5-foot universal radial drill. The company also has under way a two-story brick office building, which will contain the general offices on the first floor and the engineering and drafting departments on the second floor. It is expected that the above improvements will increase the output of the plant about 25 per cent. during the present year.

The Ottumwa Box Car Loader Company, Ottumwa, Iowa, has recently purchased the business known as the Fair-Williams Bridge & Mfg. Company, of the same city, and these two firms have been consolidated under the name of the Ottumwa Box Car Loader Company. For the sake of convenience the bridge business will be conducted under the name of the Ottumwa Bridge Company. It is stated that orders are coming in in large volume, the Box Car Loader Company having recently taken among other orders the following: Cedar Hill Coal & Coke Company, one box car loader; Tabor Coal Company, one box car loader; Canadian Northern Coal & Ore Dock Company, one dock loader; Northwestern Fuel Company, one dock loader; M. A. Hanna Coal Company, one dock loader; Northern Coal & Dock Company, one dock loader; Y. & O. Coal Company, one box car loader; Springfield Colliery Company, one loader; Vandalia Coal Company, two loaders; Southern Coal Mining Company, St. Louis, one loader; Empire Coal Company, one loader, and the Kennan Coal Mining Company, one loader. The bridge business is so badly crowded as to necessitate the operation of the shops at night. A large order was recently secured by the Ottumwa Bridge Company for a viaduct across the railroad tracks at Argenta, Ark. The Ottumwa Box Car Loader Company is contemplating the erection of an addition to its shops, 150 x 150 feet. The work is to be done immediately and will largely increase the capacity of the plant. The plans include a track and crane and other improvements.

The Aultman & Taylor Machinery Company, Mansfield, Ohio, which in September, 1905, disposed of its water tube boiler business to the Stirling Consolidated Boiler Company, rented to the latter company that part of the Mansfield plant used for the boiler business, which it will occupy next January. Should the Stirling Company not exercise an option which expires on September 15, the Aultman & Taylor Company will rearrange its thresher department and use the boiler department for the extension of its thresher business. This will avoid the erection of new buildings, which might otherwise be necessary owing to the development of the company's business.

Philadelphia Machinery Market.

PHILADELPHIA, PA., April 24, 1906.

Buying in the Philadelphia machinery market continued in fair volume during the past week. There was no heavy rush of business in any particular branch of the trade, the demand being largely for single tools, with here and there a sale of a lot composed of a few tools, either for replacement or for minor extension.

The absence of specifications covering large equipment continues. Railroad buying has been particularly quiet. This condition can no doubt be attributed to the still uncertain condition regarding the possibilities of an anthracite coal strike, and it is doubtful whether any extensive orders for railway shop equipment will be placed until after that matter has been definitely decided. Some of the Southern railroads anticipate placing some good orders at an early date, but definite information as to the time cannot be obtained. The Chesapeake & Ohio Railroad has, it is reported, deferred for the time the purchases recently anticipated. The Norfolk & Western Railroad has placed some business, and it is expected that additional equipment will be required before a great while.

The possibility of an anthracite coal strike is losing force among manufacturers of tools and machinery in this city. Manufacturers have almost universally protected themselves, storing both fuel and other raw materials in view of a strike, and the hesitancy on the part of some buyers to place business is gradually becoming less noticeable. In the mining districts, however, business continues to be held up, and orders from these fields are very scarce.

The amount of day to day business is sufficient to keep manufacturers busy, and also makes it impossible for them to catch up to any extent on already badly delayed deliveries. Purchasers find that in order to get tools of certain classes delivered earlier than next fall it is necessary to place orders at the earliest moment, and even on immediate orders it is impossible for some builders to promise deliveries inside of 9 to 12 months. There is scarcely any doubt but that the volume of business transacted at this time would be largely increased could anything like normal deliveries be made on many of the different lines and grades of tools.

Sales during the week have been confined mostly to the medium and smaller sizes of tools, the demand for those

of the heavier types being more or less inactive. Special tools of all kinds continue active, and builders of this class of machine tools are uniformly busy.

Foreign demand is unchanged. Scattering orders for tools of various kinds have been received, but there are no indications pointing toward any great volume of this trade. Manufacturers are unable to supply the wants of domestic customers, and but little foreign trade could be taken except on long time delivery.

Boilers and engines continue in fairly good demand. There has not been much change in that for the medium sizes, but the demand for those of the heavier powers has been somewhat more active. Sales of second-hand boilers and engines continue quite satisfactory, as do also those of second-hand tools and general machinery.

Both iron and steel casting plants continue to receive a large tonnage of business. Steel foundries are loaded up with work, and but few could accept contracts for any heavy tonnage to be delivered during the second or third quarters of the year, and while some jobbing foundries are able to run in an occasional rush job the majority are able to make deliveries on long time only. The gray iron foundries are fully occupied, and find it difficult to make deliveries as promptly as customers desire. Practically all of the local foundries are now working up to their full capacities, and the volume of business offered is believed to be the largest in the history of the trade.

Ballinger & Perrot, engineers and architects, have completed plans for a woolen yarn manufacturing plant for the B. F. Boyer Company, to be erected at Marlton and River avenue, Camden, N. J. The building will be 56 x 208 feet, three stories high, fireproof throughout, using reinforced concrete for the walls, columns, floors and roof. A power house, 50 x 73 feet, one story high, will also be erected. The engine room being provided with a subfloor permits of easy access to foundation of engines and for installation of piping, electric wiring, &c. Three 150 horse-power boilers will be required, as well as engines, pumps and general machinery. Bids for the construction of the building are due May 1, but specifications for the power house equipment have not yet been completed.

The Commercial Truck Company, recently incorporated for the manufacture of auto trucks and wagons, mention of which was made in a recent issue of *The Iron Age*, whose plant will eventually be located at Altoona, Pa., will install a temporary plant at Thirteenth and Hamilton streets, Philadelphia, Pa., for the assembling of trucks, until the plant at Altoona can be prepared. A number of new tools have already been purchased for the new plant, but it is understood that little will be required for the local plant. The plant at Altoona is not expected to be completed until early next year.

The Tindel-Morris Company, Eddystone, Pa., has completed arrangements with De Fries & Co., Dusseldorf, Germany, for the exclusive right to manufacture and sell the Tindel-Albrecht crank shaft lathe on the continent of Europe. The demand for these lathes has been good, particularly from automobile manufacturers, and orders for domestic delivery have been heavy. The company now has a large number in course of construction.

The Nazel Engineering & Machine Works, which devotes its entire attention to the manufacture of special machinery, has a large amount of work, covering a variety of machines, on hand. The plant is fully occupied on this class of work and recently completed a large line of special file making machinery for a local concern. Special hoop bending machinery for bending tank hoops and several beading machines for special chandelier work have also been recently delivered various customers.

Dienelt & Eisenhardt, Incorporated, are busy in every department. Orders recently have been particularly numerous for dead stroke hammers, and a number are building for both local and out of town parties. The trade in hydraulic jacks continues good, but is not as large as it was some months ago. A number of Lovekin tube expanding and flanging machines are building, and a large one taking in tubes up to 16 inches diameter has been shipped Chicago parties. The demand for their line of Monarch electric motors is good, particularly for those of the medium and smaller types. A large amount of work is on hand in their foundry, and conditions for future business are considered most favorable.

The High Duty Saw & Tool Company, Eddystone, Pa., has shipped two large Paragon cold saw cutting off machines, equipped with Tindel high duty saw blades, for export to Germany. A large billet saw has been furnished the American Locomotive Company, and another is building for the same company. Two 64-inch Tindel high duty saw blades for armor plate work have also been furnished the Midvale Steel Company, Nicetown, Philadelphia. The demand for Paragon cold sawing machines has been large, and all departments of the plant are running at their full capacity in order to meet the demand.

A. V. Kaiser & Co., dealers in new and second-hand machinery, Philadelphia, Pa., have rented a suite of offices, 739 Drexel Building, into which they will move about May 1.

New England Machinery Market.

WORCESTER, MASS., April 24, 1906.

The industrial situation in New England remains unchanged since last week. Rumors of large machinery requirements have been about, probably traceable to the big railroad shops planned for the immediate vicinity of Boston, though there may be other great shops projected and not yet announced. The demand for machine tools from New England buyers continues strong, and the manufacturers report the same great volume of business from other parts of the country. Foreign orders continue to be received in satisfactory numbers.

On Tuesday and Wednesday of next week comes the spring meeting of the National Machine Tool Builders' Association at the Chalfonte, Atlantic City, N. J. There will be a large attendance; in fact, there is a likelihood that it will be one of the largest meetings ever held by the association, the attraction of a spring meeting being coupled with the interest in the association work. There will be many ladies in the party, which will add to the pleasure of the occasion. Most of the members will arrive at Atlantic City Monday evening, when the Executive Board will be present, headed by President E. M. Woodward of Worcester, who has urged this preliminary gathering of officers that every arrangement may be made for expediting the business of the opening day. Tuesday will be given over to the meetings of the several sections. Wednesday will be occupied by the meeting of the association as a whole. This division of business worked out admirably at the special meeting in New York in December.

No business of special importance is booked for the meeting. Perhaps something may come up which will give unusual interest to the sessions beyond the routine, which is, of course, important in itself. It has been suggested from various members that a further increase in prices be made, as has been stated in this column, the idea being to make the total advance 10 per cent., which was favored by a considerable number of the members when the 5 per cent. increase was voted in December. The past week has developed strong opposition to further action on prices and it is said to be quite possible that the subject may not be presented to the meeting. A majority of the New England members believe that prices are as high as they should go. It is understood that this is the general opinion among members in other parts of the country. It is pointed out that while another 5 per cent. advance would be fair, when additional cost of production is taken into consideration, yet a fair margin of profit is being made by the manufacturers as it is. Added to this is the condition of deliveries. There is some question whether buyers would agree to higher prices for tools which cannot be delivered for months, in some instances not before winter, in a few cases not until 1907. There would be a tendency to wait on the chance that business might fall off and with it prices. Perhaps the most important consideration of all is the slump in prices which might follow the beginning of a period of dull times. With prices at the highest possible notch and business slackened up the temptation to cut under agreed figures might be too great to resist. No one believes, however, that the period of great prosperity is nearing an end. The signs do not point that way. Orders are just as frequent as formerly, even with deliveries farther off, and in some instances the demand seems to be on the increase. Certain tools are actually out of the market, manufacturers refusing to accept orders and giving instruction to that effect to their dealers. Everything tends to show that manufacturers everywhere expect a protracted prosperity.

The Waterbury Farrel Foundry & Machine Company, Waterbury, Conn., is to erect two new machine shops, each three stories and 54 x 66 feet.

During the past few days advances in prices have been made by certain manufacturers. One of the largest planer manufacturers has raised prices and the price of several drills has gone up.

New England machine tool builers are losers in the San Francisco disaster, many of them having tools included in the stocks of the machinery dealers of the ill-fated city. Probably in most instances no insurance was carried on these tools. Many other manufacturers of metal lines and hardware generally lost the contents of their stores. The branch manufacturing plants of a few manufacturers were wiped out in the fire, but insurance will undoubtedly cover the most of these latter losses.

It is not at all likely that the Boston & Maine Railroad will be in the market for the equipment of its projected repair shops before winter at the earliest. The company's engineers have not progressed very far in the preparation of plans for the great works, which will comprise both car and locomotive repair shops, to cost considerably in excess of $1,000,000, with the possibility of the great sum of between $1,500,000 and $2,000,000 being reached. It is expected by the officials of the railroad that the plans will be completed, and the site at Somerville prepared so that work on the plant will begin this season, but it is thought improbable that machinery lists will be ready before the new year. The

machinery dealers are not yet active in their quest of the business, which is a pretty certain sign of the status of the project. The lists will probably be the largest ever offered for a plant in the vicinity of Boston, even exceeding the New York, New Haven & Hartford requirements for the new locomotive repair shops at Readville, though the new shops will not exceed in size the combined two plants at Readville, including the car repair shops already in operation.

The New York, New Haven & Hartford has not offered its lists of machinery required for the Readville shops, contracts for building which are now being placed. The dealers and manufacturers are anxiously awaiting the lists, each with the hope of sharing in the very large orders. But there is no sign to tell when the lists will be out. It is presumed that the decision will be quick after the requirements are announced and bids received.

John A. Lowell and Carlton Hunneman, Boston, are to erect a ten-story fireproof building to rent for light manufacturing. The building will be located on Washington street North, with a frontage of 125 feet on that street and of 204 feet on Causeway street, giving about 17,000 net square feet to a floor. It will be equipped with freight and passenger elevators. There is a strong demand for modern factory buildings of this type in Boston as well as in other New England cities and the need is rapidly being provided for.

A special committee of the Massachusetts Legislature has reported favorably on the petition for a charter to construct the so-called New York, Brockton and Boston ship canal, which would connect Massachusetts Bay and Narragansett Bay. The project is an ambitious one, entailing the construction of a canal from Weymouth, Fore River, on Massachusetts Bay, not far from Boston, through Brockton, Mass., to Taunton, where the Taunton River would afford access to the ocean at Fall River, on Narragansett Bay. The air line distance from Weymouth to Taunton is about 25 miles. This plant is entirely distinct from the Cape Cod Canal project, which would connect Massachusetts Bay and Buzzards Bay across Cape Cod, a comparatively short distance.

The Unique Stove Company has been organized at Worcester, Mass., to manufacture a patent stove with automatic ash sifter. The company will erect a plant at Millbury, Mass., for the manufacture of the stove, the contract for the building already being let. The foundry building will be 40 x 80 feet and one story, the machine shop 40 x 40 feet and two stories and the boiler and engine house 24 x 28 feet and one story. The buildings will be of brick. The company states that it will be in the market for a complete machine shop equipment, a complete foundry equipment, including stack, and a 25 horse-power steam engine and the necessary boilers. No lists are yet ready. The officers of the company are: President, Eli Belisle; treasurer, J. B. Lamotte, and secretary, J. G. Lamotte.

F. P. Pfleghar & Son, New Haven, Conn., machinists and manufacturers of light hardware, have purchased a large lot of land on Winchester avenue, in that city, and will erect large works on the premises this season. The land lies between the avenue and the New York, New Haven & Hartford Railroad tracks. The firm will erect a three-story building which will nearly cover the property, the dimensions of which are 18 x 400 feet. Details are not yet prepared. The company's business is now located in the English & Mersick Building, on Crown street.

A change has taken place in the ownership of the Reed & Curtis Mfg. Company, Worcester, Mass., manufacturer of machine screws and other specialties. F. E. Reed of the F. E. Reed Company, who has been the treasurer of the company, has bought out the interest of A. B. Curtis and succeeds Mr. Curtis as president, retaining the office of treasurer also. It is not yet determined who will succeed Mr. Curtis as manager. Mr. Curtis has also retired from the Worcester Lawn Mower Company, a company allied with the Reed & Curtis Mfg. Company, Waldo A. Loud having acquired his stock. Mr. Loud has been superintendent of the business and now becomes its manager.

Thomas Crowther, machine tool dealer, Boston, Mass., will again move his store, this time from 44 to 170 Oliver street. The building in which he is now located has been purchased for a telephone exchange, and a number of agents and dealers in metal lines will have to move before July 1, their leases having been acquired by the new owners.

The Tudor Mfg. Company, 147 Milk street, Boston, Mass., is removing its works to Worcester, Mass. The option on the building of the National Emery Wheel Company at Worcester has been given up, the company having decided that the shop on Beacon street, formerly occupied by J. S. Wheeler, manufacturer of metal planers, would be more suitable for its purposes. The company will manufacture wrenches and other small tools.

The Great Lakes Engineering Works, Detroit, has taken an order from Wallace Brothers of Detroit for a steamer 440 feet long, 52 feet beam and 28 feet deep. Her carrying capacity will be 6500 tons of ore. The vessel will go into commission late in the season.

Cincinnati Machinery Market.

CINCINNATI, OHIO, April 24, 1906.

When one stops to reflect on the enormous amount of business that has been done during the past five months in machine tools and that the pressure to-day is even stronger than at any time during this period, the query suggests itself, When is all this activity to stop? The highly prosperous condition of the country at large is, of course, largely responsible for this state of affairs, and so long as conditions remain as they are builders of tools may expect to be kept busy. It is generally conceded by those whose opinions are worthy of consideration that the iron market is a certain index of commercial activity. If this be true we are led to believe that even greater and better times are ahead. If in the course of time a heavier demand for machine tools develops it would be a very difficult proposition for the manufacturers to meet, as, generally speaking, facilities are now being taxed to almost their full limit. Several large orders from abroad have been booked by firms in this city during the past week, and at the same time domestic trade has been highly satisfactory.

P. E. Montanus, secretary of the National Machine Tool Builders' Association, advises that the association will meet at Atlantic City, N. J., on May 1 and 2, with headquarters at the Chalfonte Hotel. Quite a number of subjects will come up for discussion, such as the apprenticeship system and motor driven machinery. There will also be a further agitation on the advisability of still further advancing the price of machine tools, as circumstances seem to warrant such a step. The association has gained considerably, both financially and numerically during the year, having recently added a number of important firms to its list of members. Mr. Montanus states that the association will be greatly pleased to have any and all machine tool builders not members of the association and interested in the work being done to attend the convention at Atlantic City, trusting that a thorough understanding of the plan and scope of the organization may induce them to submit their names for membership. The meeting promises to be largely attended, as replies received indicate.

The Cincinnati Planer Company on Buck street has approved plans for a two-story addition to its present plant. The building as it now stands is but one-story high, while the addition will change it to three stories. The second story will be of gallery construction, and will be equipped with traveling cranes and other labor-saving devices. This expansion, it is expected, will increase the facilities of the plant more than 50 per cent. Trade is reported as excellent and deliveries much delayed.

The Cordesman Machine Company, Cincinnati, has reduced its capital stock from $50,000 to $10,000.

The Bickford Drill & Tool Company last week received a very flattering order from one of the cities of France, presumably for automobile work. Home trade is said to be on the increase, and deliveries are far from satisfactory.

The Springfield Machine Tool Company says that it is doing everything possible to fill orders, but is very far behind on several types of its tools. A number of new tools have been installed recently, among which we mention an automatic threading machine, Cincinnati tool improved drill press, one of its own make of high speed lathes, two lathes with three-step cone and double-back gears and an electric drill. Domestic orders are reported good with foreign trade exceptionally fine. Skilled labor is said to be scarce and hard to obtain. The active condition of the iron market indicates a very heavy season, and the trade will no doubt be good for a long time to come.

The D. T. Williams Valve Company has nearly completed plans for its new building and work will commence within the next few weeks. Business is reported on the increase, and two Warner & Swasey lathes have been added to the equipment during the week. This company is now selling its product to every shipbuilding industry in the country, with one exception. The automobile branch is running very heavy and is proving a powerful adjunct to the other line.

The Challingsworth Foundry & Machine Company, Mt. Vernon, Ohio, has about completed its plant, and the equipment is now being placed in position ready for operation. This will probably take in the neighborhood of a week, after which everything will be complete.

Cleveland Machinery Market.

CLEVELAND, OHIO, April 24, 1906.

Manufacturers of fuel and ore hoisting and conveying machinery say that the demand for this class of machinery is unprecedented. Two or three months ago they were about up to the limit of their capacity on machinery to be used this season, but the orders continue to come in, indicating that the increase in the movement of ore and the outputs of furnaces will be far in excess of previous years.

The N. Y., P. & O. Dock Company of this city, which is controlled by Pickands, Mather & Co., will close contracts within a few days for four additional legs of fast plants for

the Cleveland docks. The plants will have 5-ton buckets, and will be electrically operated and of the most modern type.

The Brown Hoisting Machinery Company has taken a large contract for a furnace plant, two bins, bridges and conveying machinery, for the Thomas Iron Company, Hoquendauqua, Pa., which is making important extensions to its furnaces. The Brown Company has also secured a contract for two pig breaker outfits for Corrigan, McKinney & Co. of this city, one to go to the Josephine Furnace & Coke Company, Indiana County, Pa., and the other to the Genessee Furnace Company, Charlotte, N. Y.

The Garrett-Cromwell Engineering Company has just closed a contract for doubling the capacity of the open hearth furnace plant of the Detroit Steel Castings Company, which it erected a year or so ago. The addition will give the plant a capacity of 70 tons per day. The Garrett-Cromwell Company will shortly place contracts for about 20 gas producers and the iron work and cupola equipment for the open hearth furnace of the New York State Steel Company.

The G. H. Williams Company, Rockfeller Building, this city, which has recently gone into the manufacture of clam shell ore buckets, hoisting and conveying machinery, is experiencing a most pleasing demand for its patent clam shell ore and coal bucket. Within the past few months it has sold 15 of its outfits, last week closing contracts for three 3-ton buckets for Highland, Patterson & Co., Chicago, for a plant in Wisconsin.

The C. O. Bartlett & Snow Company has more work on hand than ever before, much of it being for conveying machinery. It is now working on a coal conveying outfit for the Buffalo & Susquehanna Coal Mining Company, Duboise, Pa.; revolving car dump, Wareagle Coal Company, Wareagle, Pa.; ash and coal handling outfit, American Steel & Wire Company, Sharon, Pa.; hot clinker conveyor, Alson Portland Cement Company, Alson, N. Y.; inclined coal haul. Wheeling Valley Coal Company, Lafferty, Ohio; steam dryer, Louis Metal & Iron Company, Piqua, Ohio; 10-ton coal dryer, Superior Portland Cement Company, Orangeville, Ont., and coal drying machinery for the Mansurite Explosive Company, Sharon, Pa.

The Osborn Engineering Company, Osborn Building, this city, is preparing plans for an iron foundry for the Hill Clutch Company of this city. The foundry will be 120 x 226 feet, with an L 40 x 75 feet. A cupola, three cranes and some other machinery will be installed. The building will cost about $20,000.

The McKaskey Register Company, Alliance, Ohio, whose plant was damaged by fire a short time ago, writes that the loss was exaggerated in newspapers reports. The loss, which was confined to the paint and varnish and wood working departments, was about $12,000, and was fully covered. The plant is now running as usual. Some of the machinery was damaged, but not seriously, and it will probably not be necessary to make any additional purchases.

The Detroit, Toledo & Ironton Railroad Company, Toledo, has recently purchased considerable machinery from Cleveland manufacturers and dealers for the new shops which it is erecting at Jackson, Ohio. The Springfield, Ohio, shops of the company will be abandoned in the near future and all machinery moved to Jackson.

The Niles Boiler Company, Niles, Ohio, has closed a contract with the Hyde Brothers Company of Pittsburgh to become the sole manufacturer and lessee of the Hyde water tube boiler. The company's shops at Niles will be improved to take care of this work. The manufacture of drums, tubes, fronts, casings, stacks, fittings, &c., will be continued as in the past.

The Municipal Light Plant of Mt. Sterling, Ohio, is securing estimates on new boilers and additional street lamps.

C. F. Brotherton of Ashtabula, Ohio, has been awarded a contract to install an electric light and water works plant at Girard, Ohio.

The Standard Machinery & Equipment Company, Cleveland, has purchased the equipment of the plant of the People's Light & Power Company of Springfield, Ohio, consisting of 300 kw. capacity of General Electric alternators and a 300 horse-power Hamilton-Corliss engine.

Government Purchases.

WASHINGTON, D. C., April 24, 1906.

The Isthmian Canal Commission, Washington, D. C., will receive bids until May 10 for hydraulic wheel press, pumps, lathe center and floor grinders, carborundum wheels, foundry cupola, surface planer, engine lathe, slotter, portable forges and a quantity of other supplies.

The Isthmian Canal Commission is asking bids by circular letter, to be opened May 2, for the following equipment for an electric plant to be installed on the Isthmus: Class 1, two 160 horse-power tandem compound engines; class 2, three 100-kw. engine type revolving field generators; class 5, three 120 horse-power vertical boilers; class 6, two Worthington boiler feed pumps; class 7, one feed water heater.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until May 8 for the following machinery for the Eastern navy yards: Schedule 517, cutters, lathes, tool grinder; schedule 519, motor, electric equipment for launch, pneumatic tools.

The depot quartermaster, New York, is asking bids for a combination well drilling outfit to drill to a depth of 1000 feet. There will be required a 25 horse-power tubular boiler, 20 horse-power crank link engine and a duplex pressure steam pump water cylinder.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until May 15 for a marine boiler to be installed in the United States ship Iwana at the Boston Navy Yard.

The following bids were opened April 17 for supplies for the navy yards:

Bidder 6, American Woodworking Machinery Company, New York; 8, Becker-Brainard Milling Machine Company, Hyde Park, Mass.; 10, Bentel-Margedant Company, Hamilton, Ohio; 12, Brown & Sharpe Mfg. Company, Providence, R. I.; 17, Babcock & Wilcox Company, Philadelphia, Pa.; 19, F. S. Banks & Co., New York; 22, Baird Machinery Company, Pittsburgh, Pa.; 24, Chicago Pneumatic Tool Company, New York; 35, Wm. Wirt Clark & Son, Baltimore, Md.; 38, Drew Machinery Agency, Manchester, N. H.; 43, Fairbanks Company, New York; 45, Froment & Co., New York; 46, Fox Machine Company, Grand Rapids, Mich.; 47, J. A. Fay & Egan Company, New York; 50, General Electric Company, Schenectady, N. Y.; 53, A. D. Granger Company, New York; 57, R. W. Geldart, New York; 60, Handler & Buck Mfg. Company, St. Louis, Mo.; 61, Heine Safety Boiler Company, St. Louis, Mo.; 70, J. B. Kendall, Washington, D. C.; 82, Manning, Maxwell & Moore, New York; 83, Manhattan Supply Company, New York; 84, Montgomery & Co., New York; 91, North Penn Iron Company, Philadelphia, Pa.; 93, Niles-Bement-Pond Company, New York; 94, New York Safety Steam Power Company, New York; 95, Oliver Machinery Company, Grand Rapids, Mich.; 96, Pratt & Whitney Company, Hartford, Conn.; 97, Priest, Page & Co., Boston, Mass.; 100, Prentiss Tool & Supply Company, New York; 105, Ricketts Engineering Company, Washington; 108, J. B. Roache, New York; 113, H. A. Rogers Company, New York; 120, Sanson & Rowland Company, Philadelphia, Pa.; 121, Sherman-Brown-Clements Company, New York; 124, Smith-Courtney Company, Richmond, Va.; 125, Sprague Electric Company, New York; 130, Thomas & Lowe Mfg. Company, Providence, R. I.; 136, Van Dyke-Churchill Company, New York; 139, Westinghouse Electric & Mfg. Company, Pittsburgh, Pa.; 145, Western Electric Company, New York.

Schedule No. 429.

Class 11. Four horizontal water tube boilers—Bidder 17, $11,692; 53, $12,463; 61, $9000; 94, $9006.

Class 12. One 10 horse-power direct current motor—Bidder 50, $287.25; 125, $308; 139, $252.50.

Class 13. One planer—Bidder 43, $1157.75; 82, $1180, $1005 and $1015; 93, $1175; 105, $950.

Class 14. One planer and jointer—Bidder 22, $475; 46, $410; 47, $489; 95, $803.

Class 15. One shaper—Bidder 22, $690; 43, $965.50; 82, $788, $803, $760, $853 and $705; 93, $895; 105, $568; 136, $730.

Class 16. One speed lathe—No bids.

Class 17. One 18-inch lathe—Bidder 22, $1045; 43, $895 and $1065; 82, $1040; 93, $925; 105, $500; 136, $875.

Class 18. One 14-inch engine lathe—Bidder 96, $953; 100, $620.80; 105, $335 and $498.

Class 19. One single surfacer—Bidder 22, $720; 46, $495; 47, $698; 95, $765.

Class 20. One swing cutting off saw—Bidder 10, $250; 22, $350; 47, $361; 95, $445.

Class 21. One universal double arbor saw bench—Bidder 6, $590; 10, $375; 22, $460; 47, $484; 95, $686.

Class 22. One universal wood trimmer—Bidder 22, $166; 46, $163.45; 82, $177; 95, $177.

Class 23. One twist drill grinder—No bids.

Class 24. One wet tool grinder—Bidder 22, $87; 60, $90 and $110; 82, $66; 83, $115 and $185.

Class 25. One back geared universal milling machine—Bidder 8, $993; 12, $1023; 43, $1015; 93, $110.

Class 26. One plain milling machine, with attachments—Bidder 8, $1100 and $800; 12, $719.50 and $910; 93, $707.50 and $1098; 100, $868 and $923; 130, $850.

Class 27. One portable electric drill—Bidder 19, $130 or $72; 24, $75; 57, $72 and $130; 82, $72 and $130; 100, $130; 121, $130; 145, $72 and $130.

Class 28. One 22-inch upright drilling machine—Bidder 22, $149.70 and $274; 93, $155 and $300; 100, $157.50; 105, $160 and $265.

Class 29. One single spindle vertical sensitive drilling machine—Bidder 22, $40, $44, $43 and $49; 96, $97.

Schedule No. 430.

Class 41. Four 14-inch swing screw cutting engine lathes—Bidder 43, $2380; 93, $2536; 105, $1968.

Class 42. One crane carriage—Bidder 91, $1264; 93, $1275.

Class 43. One 20-inch Eberhardt high duty shaper, with direct connected motor—Bidder 43, $1125; 93, $940; 105, $590.

Schedule No. 444.

Class 98. Twelve hydraulic jacks—Bidder 35, $786.80; 57, $999.80; 70, $922; 82, $1040.60; 84, $770.40; 108, $794.20; 113, $971.36; 120, $919.80; 121, $1006.80; 124, $1030.20.

Schedule No. 445.

Class 115. One suspended weighing machine or crane scale—Bidder 38, $965; 97, $900; 120, $1125.

Schedule No. 446.

Class 135. One 14-inch back geared screw cutting engine lathe—Bidder 93, $448; 105, $461.

The following bids were opened April 13 for supplies for the Isthmian Canal Commission, circular No. 303:

Bidder 25, E. G. T. Cowles & Co., Chicago, Ill.; 27, Daniel Connelly, Cleveland, Ohio; 33, D'Olier Engineering Company, Philadelphia, Pa.; 41, General Electric Company, Schenectady, N. Y.; 44, A. D. Granger Company, New York; 53, Hoppes Mfg. Company, Springfield, Ohio; 60, Kieley & Mueller, New York; 62, Lancaster Forge & Blower Company, Buffalo, N. Y.; 72, Manning, Maxwell & Moore, New York; 75, J. H. Menges Sons, Limited, New Orleans, La.; 81, Moran Company, Seattle, Wash.; 82, Motley, Green & Co., New York; 83, C. L. de Muralt, New York; 91, Oil City Boiler Works, New York; 104, Roberts Safety Water Tube Boiler Company, New York; 119, Sprague Electric Company, New York; 132, Wescoe Supply Company, St. Louis, Mo.; 134, Westinghouse Electric & Mfg. Company, New York; 135, Wheeler Condenser & Engineering Company, New York; 137, Williamson Bros. & Co., Philadelphia, Pa.; 141, Henry R. Worthington, New York; 143, Allis-Chalmers Company, Baltimore, Md.; 144, S. Freeman & Sons Mfg. Company, Racine, Wis.; 150, Fox Brothers & Co., New York; 151, Phœnix Iron Works, Meadville, Pa.; 154, Occidental Machinery & Engineering Company, San Francisco, Cal.

Class 57. Four Scotch marine boilers—Bidder 27, $20,000; 44, $14,600 (New York delivery), $15,692 (Colon delivery); 72, $13,540.20; 81, $19,553 (f.o.b. Seattle), add $4400 delivery La Boca; 82, $14,664; 144, $17,200.

Class 58. Electric light plant—Bidder 33, $15,764; 41, $14,347; 44, item 99, $10,395 (New York delivery), $10,736 (Colon delivery); item 100, $1090 (New York delivery), $1115 (Colon delivery); item 101, $864 (New York delivery), $879 (Colon delivery); 83, item 108, $2229.40; 119, item 101, $822; 132, $19,361.70; 134, $15,189, total; 143, bidders' specifications, $16,680, total.

Class 59. Three tubular boilers, vertical, 120 horsepower—Bidder 25, item 110, $361.70; item 111, $210; 33, $7940; 44, item 109, $2475 and $2875 (New York delivery), $2825 and $3225 (Colon delivery); 53, item 111, $300 and $385; 60, item 11, $325; 62, item 110, $400; 72, $8639.37; 75, item 110, $350.50; 81, item 109, $4275 (f.o.b. Seattle), add $450 delivered La Boca; 82, item 110, $316; item 111, $305; item 112, $1950; 91, item 109, $3450; 104, item 109, bidders' specifications, $6360; 135, item 112, $1865 (f.a.s. New York); 137, $7372; 141, item 109, $2782.24; item 110, $329.16; item 112, (*a*) $1850.96, (*b*) $2029.26, (*c*) $2221.26; 150, item 111, $191.10; 151, item 109, $7437; 154, item 110, $396.40.

Under bids opened March 20 for supplies for the navy yards Manning, Maxwell & Moore, New York, have been awarded class 3, one electrically driven sensitive drill, $100.

The following awards have been made for machinery for the navy yards, bids for which were opened April 3:

Hendey Machine Company, Torrington, Conn., class 31, one new model 14-inch gibbed carriage engine lathe, with 6-foot bed and 36 inches between centers, $690.

Hill, Clarke & Co., Boston, Mass., class 41, one cutting off machine, $917.

Fore River Shipbuilding Company, Quincy, Mass., class 42, one turbine engine, with auxiliaries and water tube boiler, $11,280.

American Ship Windlass Company, Providence, R. I., class 243, two steam winches, $700.

The Ohio Works of the Carnegie Steel Company, at Youngstown, Ohio, are being operated on rails exclusively and some good records for output are being made, the plant turning out at present over 1500 tons per day. The present blooming mill in this plant is to be replaced by a larger and more modern mill, but just when this will be done is doubtful, as orders for rails are so pressing that the company does not care to close the plant down to install the new mill. Plans for the new blooming mill are now being made under the direction of M. A. Neeland.

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HARDWARE

IT is needless to say that the sympathy of the trade as of the civilized world has gone out in ample measure to the sufferers in the San Francisco catastrophe. Among these were many Hardware houses, including several very large and prominent, to whom there has come the destruction of their buildings and the great stocks of Hardware contained in them, but as far as known without loss of life. Very characteristic is the energy with which the work of recovery is being taken up, and there is little doubt even at this early day that a new city will rise on the ruins of the old, built on better lines, inheriting its traditions and prepared to restore and extend the prosperity so suddenly and so tragically interrupted. In the carrying out of these plans the people of San Francisco will certainly have the sympathy and co-operation of the trade and of the whole country. The noble response from all quarters in contributions of money and in the rendering of assistance through every possible channel is a most impressive illustration of the genuineness and depth of sympathy evoked by the great calamity.

After the decision as to the correct method of figuring costs of production, and the least variable constant upon which to base the percentage to be used to cover overhead or nonproductive manufacturing expenses, there is perhaps to the average manufacturer no greater stumbling block than the depreciation account. Depreciation may be defined industrially as the gradual but constant reduction in value of any article representing an asset, but especially machinery, according to the period of its utility or before its replacement by one of new or improved design.

All too frequently the manufacturer regards depreciation from a point of view altogether wrong—that is to say, it is treated as something to juggle with in order to increase or decrease, as may be deemed desirable, the amount of profits for the year. There are comparatively few who give very serious consideration to this most important feature. A common practice is to wait until the inventory is completed and the gross profits ascertained and then write off an arbitrary sum for depreciation, without any regard at all for accuracy or equity in the matter, and should the results show a very small margin of profit or none at all the matter of depreciation is ignored altogether!

Under such circumstances profits are obviously false profits. Such methods betray a lack of appreciation of the value of and necessity for systematic and accurate accounting. When the course described is adhered to it is often found that dividends, if any are declared, are being paid wholly or in part from the invested capital, not from earnings, with the great probability that if such practices are continued they will sooner or later result in serious impairment of capital or in bankruptcy.

Even where it is realized that a certain amount must be written off each year for depreciation of plant, tools, machinery, &c., and this is regarded as it should be as much a part of the cost of goods made as labor, material and supplies, it is only infrequently done in a thorough and systematic manner. This is in large part owing to the difficulty and complexity of the problem. The importance of the manufacturer's having correct principles, which avoid above all things an underestimating of depreciation, makes the subject worthy the most careful consideration.

Condition of Trade.

The attention of the trade during the past week has been diverted from the regular routine of business to the great calamity at San Francisco. Very many persons had personal or trade relations with the sufferers in the unfortunate city, but apart from such considerations instincts of humanity and the feelings which bind men together called out expressions of sympathy and manifestations of helpfulness in every part of the country. In all this the Hardware trade has characteristically borne its share, as merchants and manufacturers in open and concerted movement or individually and less obtrusively have contributed to the relief fund. Meanwhile the general course of business has continued, and a great volume of goods which are called for by the activity of trade and the prosperity of the country has been steadily going into consumption. Both wholesale and retail merchants report business large, and free from any special influences which are in the least discouraging or calculated to awaken apprehension. The market remains steady in the matter of prices, with few quotable changes. A great many seasonable goods are hard to get in sufficient quantities to serve the convenience of the trade, and not a few merchants are suffering a very proper penalty for deferring their purchases too long. There are continually recurring illustrations of the mistake made by merchants who are late in their buying and have lost sales because the goods were not in stock, while at the same time they have to pay higher prices than if they had been more prompt and alert in their ordering. The disaster on the Pacific Coast, apart from the side which first commands attention and regarded from a purely business standpoint, will undoubtedly result in large demands on the production of the country for material and goods to take the place of those destroyed and needed for the rebuilding of the city. In this way there will be a new and unexpected call for very considerable quantities of iron and metal products, which will give mills and factories, already fully occupied, many orders to which under the peculiar circumstances they will doubtless endeavor to give the best and promptest attention. Fortunately there is little reason to fear any considerable financial disturbances as the result of the disaster, and the early effect of the new business when it sets in will be in the direction of increasing the volume of the trade and still further strengthening the market.

Chicago.

The Western Hardware trade continues to enjoy unparalleled prosperity and the volume of business, gauged by the new orders that large jobbers are receiving from the retail merchants, is without decline. A falling off in the demand for many lines was expected during the present month, due to the heavy buying early in the year, but no curtailment is yet evident. This is notably true of Garden Tools, including Rakes, Hoes, Spades, &c., the manufacturers being unable to produce the goods in sufficient quantity to meet current demand. The heavy stocks accumulated by distributers earlier in the year are practically depleted, and the uncertain shipments of the makers now have to be almost entirely depended upon.

Carpenters' Tools, including Augers, Hatchets, Drills, &c., are likewise moving in large volume and shipments are delayed. Ironed Double Trees, Single Trees and Neck Yokes were advanced approximately 5 per cent. at a meeting of these manufacturers, held in Milwaukee last week. The makers of these goods are experiencing increasing difficulty in securing malleables, and higher prices have been named by the malleable foundries. Hickory is constantly advancing and the Wagon hardwood manufacturers assert that the higher prices they have named no more than represent the increased cost of raw material. In the Northwest the spring trade has opened with the brightest of prospects and heavy lake shipments are now being made by both jobbers and manufacturers. In the South and Southwest intermittent rains to some extent continue to hamper trade and the roads are in a deplorable condition. Throughout this section, however, the country roads are in excellent shape and the increased trade reflects the favorable weather conditions prevailing. Contracts for future delivery are being placed with the jobbers by the manufacturers in only a few lines, and the indications are that there will be no heavy buying from this source until later in the spring. Prices generally are at their high point and there is no incentive in the way of concessions for distributers to cover extended deliveries at present.

NOTES ON PRICES.

Wire Nails.—The market is monotonous, insofar as there have been no price changes for some time, but remarkably steady for the spring season, as a result of the continued good demand. All the mills are busy and buyers cheerfully pay prevailing prices without question. New business is larger than for some time and stocks in the hands of jobbers and manufacturers are reported smaller than is usual at this season. Specifications on contract orders are being received by the mills in good volume. Prices are firm and quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads to jobbers	$1.85
Carload lots to retail merchants	1.90

New York.—The output of small lots from store thus far in April indicates that it will approximate that for March by the end of the month. It is reported that jobbers' prices are being well maintained. Small lots from store are quoted on the basis of $2.15 per keg.

Chicago.—During the past week new tonnage and specifications on old contracts for Nails and all kinds of Wire products were heavier than during any similar period since November. The new orders for Nails were largely from jobbers for filling in stocks that have been practically depleted. There will be no interruption of Wire Nail shipments to San Francisco. In fact, it is probable that they will be increased, owing to the large amount of temporary building that will be immediately undertaken. Both the plant and the warehouse of the American Steel & Wire Company at San Francisco are intact and the stock on hand is sufficiently large to provide for immediate needs. Quotations are firmly maintained, as follows: $2 in car lots to jobbers and $2.05 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—The large jobbing trade is placing more liberal orders for Wire Nails and the amount of new business being entered by the mills is larger than for some time. Specifications on contracts are coming in quite freely and shipments via the lakes are being made in large volume. Stocks held by the mills and also by jobbers are stated to be lighter than usual at this season of the year. We understand that the leading Wire Nail mills are pretty well sold up until July 1. The tone of the market is firm, but there is no indication of an early advance in prices and we quote: Wire Nails, $1.85 in carloads to the large jobbing trade and $1.90 in carloads to retail merchants, f.o.b. Pittsburgh, plus actual freight to point of delivery, terms 60 days, less 2 per cent. off for cash in 10 days.

Cut Nails.—A meeting of the Cut Nail Association is being held to-day (Wednesday) in Philadelphia. Among the trade it is not considered likely that a change in prices will be made. A good business is experienced by the mills, with the prospect of a continuance. Quotations are as follows: $1.80, base, for carload lots, f.o.b. Pittsburgh; $1.85 for less than carloads, f.o.b. Pittsburgh; $1.95 for carload lots, on dock, New York; $2 for less than carloads, on dock. New York, Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 5 to 10 cents advance on Steel Cut Nails.

New York—No market changes have occurred, prices remaining unchanged and demand continuing moderate. Jobbers' prices are reported as being maintained. Quotations are on the basis of $2.05 per keg.

Chicago.—Specifications on contracts continue to improve and are fulfilling expectations for a heavy month. Country roads in the West are now practically in a condition where no difficulty is experienced in travel and retailers are placing large orders. Quotations are firmly maintained as follows: Steel Cut Nails in car lots, $1.95; less than car lots, $2; Iron Cut Nails, $2.05 in car lots; less than car lots, $2.10.

Pittsburgh.—Jobbers report a large demand from the retail trade and the mills are entering a fairly large volume of new business. Specifications on contracts are coming in quite liberally and demand for Cut Nails promises to steadily expand from this time forward. The tone of the market is firm, official prices being quite firmly held. We quote $1.80, base, for carload lots, f.o.b. Pittsburgh; $1.85 for less than carloads, f.o.b. Pittsburgh. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 5 to 10 cents advance on Steel Cut Nails.

Barb Wire.—There is an improved demand from sources other than to supply the farming community with fencing material. The heavy condition of country roads is still preventing hauling large loads in many sections of the country. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	$2.00	$2.30
Retailers, carload lots	2.05	2.35
Retailers, less than carload lots	2.15	2.45

Chicago.—Owing to the large amount of new railroad construction that is being carried on throughout the West, the demand for Barb Wire has shown a heavy increase since the first of the month. The indications are that the railroad consumption this year will surpass all records. Nor is this demand limited entirely to steam roads, as electric lines are also figuring as heavy purchasers for fencing their rights of way. Quotations are firmly maintained, as follows: To jobbers, Chicago, car lots, Painted, $2.15; Galvanized, $2.45. To retailers, car lots, Painted, $2.20; Galvanized, $2.50. Retailers, less than car lots, Painted, $2.30; Galvanized, $2.60. Staples, Bright, in car lots to jobbers, $2.10; Galvanized, $2.40; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—As yet the amount of new business being entered by the mills is very light, but it is believed with the advent of good weather, permitting farmers and other consumers to rebuild fences, new demand will soon show betterment. Shipments by the mills on old contracts continue quite heavy. The market is firm, and we quote: Painted Barb Wire, $2, and Galvanized, $2.30, in carload lots to the large jobbing trade, with the usual advance of $1 a ton to retailers in carload lots, f.o.b. Pittsburgh, 60 days, or 2 per cent. off for cash in ten days.

Smooth Fence Wire.—Demand continues heavy, the telephone companies being large buyers, while manufacturers of fencing are prominent in the market. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in ten days:

Jobbers, carloads	$1.70
Retailers, carloads	1.75

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12&12½	13	14	15	16
Annealed	Base	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	.40	.45	.55	.65	1.05	1.15

Chicago.—Telephone companies now figure as the heaviest purchasers of Smooth Fence Wire, although the increased demand for fencing is reflected in the continued heavy specifications that are being received from independent fence manufacturers. Electric roads have placed large contracts during the past ten days for Copper Wire and Rail Bonds, the total tonnage closed being unusually heavy. Fence manufacturers are not yet contracting for future requirements and it is hardly probable that anything will be done along this line until next fall. Quotations are firmly maintained, as follows: To jobbers, $1.85, f.o.b. Chicago, in car lots, and car lots to retailers, $1.90.

Pittsburgh.—Demand for Fence and Fencing Wire continues unusually heavy and the two leading interests, the American Steel & Wire Company and the Pittsburgh Steel Company, are considerably behind in shipments of these products. Demand for Wire from the telephone companies is very heavy and is constantly getting larger. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in ten days:

Jobbers, carloads	$1.70
Retailers, carloads	1.75

The above prices are for base numbers, 6 to 9.

Binder Twine.—Buying is reported as quiet and is not expected to show an increase before the first of May. There is no indication of prices being higher and a waiting policy is not looked upon as entailing risk. There has been no change in quotations, which are as follows:

	Cents per pound.
Sisal	9¾ to 10
Standard	9¾ to 10
Standard Manila	10¾ to 11
Manila (600 foot)	12 to 12¼
Pure Manila (650 foot)	13 to 13¼

Five-ton lots, ⅛ cent less. Carloads, ¼ cent less. F.o.b. Central points, with the usual ¼ cent added for Northwestern and Missouri River delivery. A ¼-cent reduction on the above schedule of prices would fairly represent the Eastern market, this being the difference in freight between Central points and New York. The newspaper reports that the board of control of the Minnesota State prison, at Stillwater, had decided to sell to dealers in the State instead of, as formerly, to consumers only, contain a grain of truth, according to a letter from the prison warden published in a recent issue of the *Farm Implement News*. In this letter it is stated that there will doubtless be some Twine for dealers on May 1, but just how much cannot be determined at present. The letter also states that the prison has already disposed of about 11,000,000 pounds in carload club orders and in small cash orders direct from farmers, out of a total output of different grades for the year of 13,152,605 pounds.

Pike Mfg. Company's Retail Assortments.—Pike Mfg. Company, Pike, N. H., has issued a price-list announcing a change in its method of packing and pricing Sharpening Stones. The system instituted by this company of supplying the trade with selling assortments of different kinds of Stones has met with deserved favor. It provides the merchant with a stock that requires little trouble or attention, and enables him to secure a variety for all requirements at a minimum price without investing in more goods than he needs. The new price-list is intended for refilling stock assortments and gives list prices and discounts on Oil Stones, Scythe Stones and Hones by the dozen, put up in single cartons or convenient packages. On every carton or Stone will be found information as to the purposes for which each is best adapted, concise instructions regarding use and selling price. It is explained that the goods are offered in this way, so that the retailer can carry a better assorted stock at less expense and supply the wants of the consumer more intelligently and with larger profit. On orders received within a month the company offers special terms of 90 days, 2 per cent., 10 days and as an unusual but seasonable inducement will include in shipment a jar of new maple syrup or sugar produced in the New England country at this time of year. Below is given the price-list of stock for refilling Oil Stone assortments, which is subject to discounts, as follows:

	Discount.
Group A	33⅓ %
Group B	33⅓ %
Group C	40 %
Group D	40 %
Group E	50 %
Group F	33⅓ %

The list to which the above discounts apply is given below:

Group.		Per doz.	How put up.
A	Lily White Pen Knife Pcs.	$1.00	1 dozen packages.
"	Washita 6 inches	3.60	1 dozen boxes.*
"	Lily White Slips	2.35	¼ dozen cartons.
"	Washita 8 inches	4.50	1 dozen boxes.*
"	Hard Arkansas 4 inches	6.50	½ dozen cartons.
"	Lily White 6 inches	7.20	1 dozen boxes.*
"	Lily White 8 inches	9.00	1 dozen boxes.*
"	Soft Arkansas 6 inches	15.00	Individual cartons.
B	Fastcut Axe	.45	½ dozen cartons.
"	Fastcut 6 inches	2.00	1 dozen boxes.*
"	Quickcut Axe	1.50	¼ dozen cartons.
"	Fastcut 8 inches	2.50	1 dozen boxes.*
C	Hard Arkansas Mtd. 3½ in.	9.00	Individual boxes.
"	Lily White Mtd. 6 inches	11.50	" "
"	Lily White Mtd. 8 inches	14.00	" "
D	Hard Arkansas Needle Pcs.	1.50	1 dozen packages.
"	Queer Creek 6 inches	2.40	1 dozen boxes.*
"	Queer Creek 8 inches	3.00	1 " " *
"	Quickcut 6 inches	3.50	1 " " *
"	Quickcut 8 inches	4.50	1 " " *
E	"Ezy Edge" Hones	12.00	Individual cartons.
"	Barbers' Special 5 inches	9.00	" "
F	India Slips	3.60	1 dozen cartons.
"	" No. 29 Coarse	7.20	Individual cartons.
"	" No. 29 Medium	7.20	" "
"	" No. 2 Combination	7.80	" "
"	" No. 2 Fine	9.00	" "
"	" No. 1½ Medium	9.00	" "
"	" No. 1½ Medium Mtd.	12.00	" "
"	" No. 1½ Combination	12.00	" "
"	" No. 0 Medium	12.00	" "

* Put up in cartons and then in boxes.

The Oil Stone assortments for the replenishing of which these facilities are given, are as follows: Oil stone assortment, No. 1, consisting of cabinet and 79 stones, listing at $34.20, costs the retail merchant $20 net; assortment No. 2, contains 47 Stones, listing at $20.55, and costs $12; assortment No. 3, containing 52 Stones, listing at $24.30, costs $15.

Stock for refilling Scythe Stone assortments is sold from the following list subject to a discount of 33 1-3 per cent.:

	Per doz.	How put up.
Green Mountain	$0.60	3 dozen boxes.
Sun	.50	3 dozen boxes.
Leader Red End	.45	3 dozen boxes.
Indian Pond No. 1	.67½	1 and 3 doz. boxes.
Quickcut	.90	" "
Mowing Machine	1.12½	" "
Crescent	.65	" "
Willoughby Lake	.85	" "
Premium Quinnebaugh	.80	" "
Black Diamond	1.12½	" "
White Mountain	.90	" "
Corundum	1.65	" "

On the purchase of an original stock with cabinet, Scythe Stone assortment No. A, containing 80 Stones, listing at $8.70, costs the merchant $4.75 net; assortment No. B, contains 84 Stones, listing at $7.80, and costs $3.75.

Stock for refilling Razor Hone assortments is sold on the following list subject to a discount of 50 per cent.:

	Per doz.	How put up.
Quarter Fine 6 inches	$3.60	½ dozen packages.
Dark Blue 6 inches	2.25	½ dozen packages.
Superfine 5 inches	4.80	Individual cartons.
Half Fine 7 inches	7.20	" "
Yellow Green 7 inches	10.50	" "
Superfine 6 inches	8.00	¼ dozen packages.
Barbers' Delight 6 x 2 inches	8.40	Individual cartons.
Extra Choice Selected 6 inches	13.20	" "
Swaty 5 inches	12.00	½ dozen packages.
Barbers' Special 4 x 2 inches	24.00	Individual cartons.
Barbers' Special 7 inches	30.00	" "
Barbers' Special 6 x 2 inches	54.00	" "

Razor Hone assortment No. 1, with cabinet, contains 28 Hones, listing at $30.75, and costs the merchant $18 net; assortment No. 2, consisting of cabinet and 31 Hones, listing at $17.50, costs $10.

Bolts, Carriage, Machine, &c.—It is stated that manufacturers of Carriage and Machine Bolts, at their monthly meeting held last week, reaffirmed the prices which have now been in force since the early part of the

year. In the main it may be said that these prices are very well maintained, most makers being so far behind their orders that the slight falling off in business noticed this month has not been unwelcome. Many large handlers of Bolts in the local market assert that there is much difficulty in getting goods urgently needed to fill up broken lines. There are doubtless a few jobbers in different sections whose large unexpired contracts at low prices enable them to take orders in competition at slightly better discounts than are generally prevailing. Concessions of perhaps 5 per cent. are also reported on the part of a few manufacturers not identified with the association.

Scythes.—While of course the bulk of the Scythe business has been completed, it is reported that a few orders are still being placed by smaller buyers and to fill in depleted stocks. On this belated business, somewhat higher prices are to be expected, according to the schedule of the associated manufacturers, which gave lower prices to those who purchased early, among whom presumably were all the leading jobbers. All premiums for prompt specifications and early payment having expired with an advance which went into effect in December, prices now stand nominally as given below, subject to usual concessions to the different classes of buyers:

	Per doz.
Grass, No. 1, plain finish	$6.75
Clipper, bronzed Webb	7.00
No. 3 Clipper, polished Webb	7.25
No. 6 Clipper, and solid steel	7.50
Bush, Weed and Bramble, No. 2	7.25
Grain, No. 1	8.75
Bronzed Webb, No. 1	9.00
Nos. 3 and 4 Clipper Grain	9.25
Solid Steel, No. 6	9.75

Rope.—The market continues unchanged, demand being fair to good, with a firm tone. Quotations are as follows: Pure Manila, 12½ cents; B quality, 11½ cents; Pure Sisal, 9½ cents; No. 2 quality, 8 cents per pound.

Window Glass.—At the meeting of the Window Glass manufacturers, held at Pittsburgh last week, an advance of 2½ per cent. was made in price over the discounts adopted at the meeting held on March 29. The new prices are reported as follows: 90 and 2½ for single and 90 and 7½ per cent. discount for double strength Glass to purchasers of 1000 boxes or more. For carload lots the discounts are 90 for single and 90 and 5 per cent. discount for double strength. The price for 16 x 20 and 16 x 24 single, greenhouse sizes, is 89 and 5 per cent. discount. It is estimated that there was not over 240,000 boxes of single and double strength hand blown Glass in manufacturers' hands at the time of the meeting. It is understood that an effort will be made to have all Glass factories close down on June 10. A letter recently received by a Glass jobbing concern from a large manufacturer stated that his plant might close down any time after June 1. San Francisco will need a large amount of Window Glass to repair damages and for new buildings, a rough estimate being that 1,000,000 boxes will be required. A meeting will be held by manufacturers and jobbers early in May, the object being to establish more intimate relations. New York jobbers have deferred making any change in prices until after this meeting. New York quotations are now 90 and 10 per cent. discount for all sizes of single and double strength.

Linseed Oil.—A slight improvement is noticed in demand with a trifle firmer market. City Raw is quoted at 42 to 43 cents per gallon. Out of town Raw is held at 38 to 39 cents, according to quantity, with deliveries on contract orders extending to August 1. Boiled Oil is 1 to 2 cents advance over Raw.

Spirits Turpentine.—A moderate business has characterized the week, with a decline in prices. Receipts at Savannah are reported being less than those for last season owing to difficulty of securing labor to cut boxes. New York quotations are as follows, according to quantity: Oil Barrels, 67½ to 68 cents; Machine Made Barrels, 68 to 68½ cents per gallon.

THE CAPEWELL HORSE NAIL COMPANY, Hartford, Conn., has purchased the machinery of the Putnam Nail Company, Neponset, Mass., which practically closes the business career of the latter company.

TRADE ITEMS.

AT a meeting of the Board of Directors of the New England Hardware Dealers' Association, held at the rooms of the Boston Merchants' Association on the 24th inst., reports of the returned delegates to the National Hardware Convention at Chicago, March 20 to 24, were read and accepted, and a committee was appointed to bring in an outline of plans for the 1907 convention, which will be held in Boston. Resolutions were adopted in opposition to parcels post measures before Congress and recommending a revision of postal classification and rates, with the end in view of bringing about a one-cent letter rate.

HENRY GLEASON, formerly at 258 Broadway, New York, has removed his office to 100 Broadway, corner of Pine street, where he continues to represent the American Tube and Stamping Company, Bridgeport, Conn., and the Matthews Mfg. Company, Worcester, Mass., in this territory.

IN honor of the greatest three months' business in its history—that of January, February and March of the present year—Wyckoff, Seamans & Benedict, Ilion, N. Y., manufacturers of the Remington Typewriter, entertained their foremen and assistants at a most enjoyable banquet on the 7th inst.

CLARK-RUTKA-WEAVER COMPANY, Grand Rapids, Mich., has lately increased its floor space to 60,000 square feet, the seven-story building at 38-46 South Ionia street being entirely occupied by the business, with the exception of the space used by the armory and the Elks. The company has also enlarged its capital stock and added materially to the lines carried, so that it is in better position than ever before to look after the increasing requirements of its customers.

R. S. HICKEY, who has represented the Columbian Hardware Company, Cleveland, Ohio, as traveling representative in Indiana and Michigan, will hereafter include the States of Missouri, Kansas, Nebraska, Iowa, Minnesota, North Dakota, South Dakota, Colorado and Wisconsin in the territory visited by him.

A MEETING of the stockholders of the Lisk Mfg. Company, Canandaigua, N. Y., has been called for May 1 to vote on an increase in capital from $1,000,000 to $2,000,000. It is intended to enlarge the plant for the manufacture of additional lines of Enameled and Galvanized Iron Ware. The company is now erecting a brick building 200 x 60 feet, and has in contemplation for early erection another three-story brick building 400 x 60 feet.

THE business of Hotchkiss Bros., Wallingford, Conn., manufacturers of Rivets and Tire Bolts, will be succeeded by the Equipoise Rivet Company, the organization of which is not yet completed. It is expected that the offices of the new corporation will be in the Jones-Morgan Building, Waterbury, Conn.

THE loss to the Goodell Company, Antrim, N. H., manufacturer of Cutlery, by the fire, April 13, was exaggerated in the daily press dispatches. Only a slight delay in the operation of the factory resulted, and the loss was but $2000.

THE DIAMOND FABRIC COMPANY OF AMERICA has been organized for the purpose of manufacturing the Diamond Link Wire Fabrics for spring beds, patented December 15, 1903, and which are already being made on a royalty basis by some concerns in the West. The company will locate either in New York or New Jersey as soon as a suitable factory can be secured. The concern is also intending to manufacture other wire specialties, preferably those which are covered by patents. New and up to date wire forming machines with a capacity for turning out about 1000 Fabrics per day will be installed. R. B. Smith and C. T. Church of Hoboken, N. J., are president and secretary-treasurer, respectively, and John School, vice-president.

The building and stock of heavy Hardware and Ship Chandlery of the Snow & Neally Company, Bangor, Maine, was damaged by fire April 12, with a loss of $15,000.

A BOOKLET ON THE RETAIL MAIL ORDER PROBLEM.

"THE RETAIL MAIL ORDER PROBLEM" is the title of an able and forcefully written booklet issued by Butler Brothers, New York, Chicago and St. Louis, designed "to help the local retailer to a new and less disheartening view of the retail mail order house; to persuade him of his personal ability to solve his personal retail mail order problem; to provide plenty of definite practical things to do—in a variety representative enough to suggest many more definite, practical things to do."

The subject is treated exhaustively in all its varying phases, and is accompanied with suggestions and campaigns, which if accepted and faithfully prosecuted will enable the retail merchant to combat the evil influences of this competition. Its 120 pages teem with trade epigrams that are the fundamental principles for the successful conduct of any retail establishment. This treatise is divided into 23 chapters, each devoted to a careful consideration of the varying ramifications of this problem and

The Way and Means

of curbing and eventually overcoming it. The short and pithy paragraphs, each containing a pertinent thought, lend a charm to the work that holds the attention throughout, and the carefully arranged side heads not only suggest the topics discussed, but add to the typographical appearance as well.

Without decrying the extent and magnitude of mail order competition, attention is called to the existence of approximately 300,000 country stores in the United States whose average yearly sales are at least $10,000, amounting to an annual business of $3,000,000,000, as compared with a total of all retail mail order business in a like period which will hardly amount to a dollar for each individual of the population of the United States. In defining

The Goods Best Retailed by Mail

it is stated that lines which in retail stores stand on the floor instead of being displayed in show cases or on shelves, are the lines actually sold by the catalogue houses, and include Vehicles, Bicycles, Implements, Sewing Machines, Stoves, Furniture, Refrigerators, Baby Carriages, sets of China and Crockery, &c., and in such lines as Tools their sales are of the heavy and higher priced articles, the demand for which in any one locality is very limited, but for the entire country is of very respectable proportions. Referring to the things hard to retail by mail, it is stated "in popular priced goods of all sorts the sales of the retail mail order houses are not large enough to help themselves nor to hurt retailers very much." Striking proof of that statement is the fact that the retail mail order houses are fixing themselves to manufacture only bulky things.

Accepting the mail order house as a competitor a study of its competition is suggested and the following plan of action outlined: "Get the catalogues that bother you most. Learn from your railroad agent the freight rate on the different classes of goods. Add the freight charges to the catalogue prices and compare the sums with your own prices for goods your customers would think are the same. Then draw your conclusions and make the work thorough, however much it may hurt you to do so."

An inexpensive method of compiling a mailing list of purchasers and prospective purchasers in a merchant's immediate community is fully covered in chapter 7, and in the following chapter the advantage the retailer enjoys in being able to deal with a customer in person is pointed out. The necessity of carrying a varied line of goods well displayed, frequently changed and fully up to date is treated in several of the succeeding chapters, which, in addition, offer valuable methods and suggestions whereby this can be accomplished.

The Advantage Enjoyed by the Merchant

over the mail order house which permits him to secure the latest goods is referred to as follows:

A retail mail order house begins the preparation of its big catalogue far ahead of the mailing date, and must make sure of the supply of things it expects to sell in big quantities for months after the catalogue is mailed. Out of this necessity springs the opportunity for you to prove your superior ability to provide the things that are latest, and in the sale of them you will be free from the competition of retail mail order houses until their catalogues for the following season are issued.

Advertising.

"Advertise" is another solution offered the retailer for overcoming the mail order house problem. The pages devoted to advertising in all its various forms will bear the closest study by the merchant, and the plans and campaigns outlined are all tried and known business getting methods. To equip himself for better advertising the merchant should "take an advertising journal and a good trade paper or two. Read them as regularly as they arrive for suggestions to be noted then and there as to what you can do to push trade later on, as well as at that time."

The valuable assistance that can be rendered by editors of local papers is covered in chapter 10, which opens as follows: "In fighting mail order house competition editors of local papers can render exceedingly valuable help, and the merchant who fails to make a warm friend of the local editor is neglecting one of his important advantages." Articles are given in full that cannot fail to prove of great help in the antimail order house campaign, and as they have been carefully prepared by experienced journalists should prove to be desirable reading matter for the columns of any local publication.

The following chapter contains advertisements with parallel column features that can be used to advantage in any community for the purpose of pointing out the devious methods of the catalogue house. Association work, with its attendant intricacies, is also suggested as a solution to the general mutual benefit of all concerned, and it is pointed out that "to be permanent a merchants' association should confine itself to devising ways and means of bettering trade generally in the town or county. Of course, efforts in that direction cannot be continuously successful unless the interests of customers are also considered."

A Few Epigrams.

A few of the many trade epigrams contained in this booklet of great educational value to the retailer are given below:

No matter what your own opinion may be, your trade regards the retail mail order houses as your competitors—just as legitimate as the man up the street or around the corner.

Have you made it a point to ask your customer why you have lost any orders of his? And, as your jobber does, have you expressed a willingness to serve your customers as they, the customers, want to be served?

Would a customer of yours have sent his first order to the stranger who showed pictures instead of goods, who talked on paper instead of face to face, who asked pay in advance instead of giving more or less unlimited credit—would such order ever have been sent by your friend if you had always fully improved your advantages?

Are you as good a salesman as can be if you cannot get a chance at least to figure on the purchases your friends make in your line? And are you as good a merchant as you can be unless you do make friends of your customers?

One form of abuse of the mail order house which in particular it will pay you to avoid is that which takes the form of attempts to laugh them down.

It is easy to know what your retail mail order competition is, because each house issues a catalogue.

The retail mail order house sells goods exactly as good in the catalogue, remember, but for their baits they frequently buy "skinned" goods—that is, with every part left out that will reduce cost and still leave articles that look like the originals.

In combating retail mail order houses it is an essential that you draw people into your store. How do you expect to do that unless you offer them the goods they want?

A great trade tendency of to-day that must be reckoned with by the retailer sincerely fixing himself to compete with the retail mail order houses manifests itself in the disposition of people to trade where merchandise is offered in the greatest variety.

A bargain, remember, is a reason you give for coming to your store. Your purpose in offering the "reason" is to get people into your store, where you have all your goods so displayed that enough of them who come for the bargain will buy other goods in quantity and kind so as to make the transaction as a whole profitable—even though each sale of the bargain itself represents a considerable loss.

When trade is good it pays to push because then increased business must surely follow from increased effort, and when trade is dull it pays to push because then you need the business.

The basis of all permanent mercantile success is confidence. Note the extremes to which the retail mail order houses are will-

ing to go in order to establish their customers' confidence in them.

There is probably no single principle that will go further in developing confidence in your store than that of returning the money and taking back the goods at any time the customer is dissatisfied—cheerfully and without argument.

One reason so many merchants say that advertising in local papers does not pay is because they themselves make small effort to use their own space in the right way.

Look upon every dollar of capital as a general might view every soldier in an army, to be kept constantly on the move.

Discount bills, and, so far as practicable, also sell for cash.

Be bold in pricing for profit on the many regular items as you are in forgetting profits on the few bargain items.

Believe in advertising your real bargains by printers' ink, special sales, show windows, and every other legitimate means.

Material for this booklet has been accumulated during the past three years, and to show the intense interest in the topic the firm has already received 35,276 requests for it, emanating from every State in the Union and ranging from metropolitan department stores to cross roads general stores. By addressing Butler Brothers, New York, Chicago or St. Louis,, it will be sent free, postage prepaid.

SAN FRANCISCO HARDWARE INTERESTS.

THE business situation in San Francisco, as it relates to the five larger wholesale houses handling Hardware and Metals, is one of complete destruction from earthquake and shock, so far as buildings and stocks are concerned, with one exception, that of the Pacific Hardware & Steel Company, whose immense new warehouses and offices, taken possession of last August, nearly 2 miles from its former location, were damaged only to the extent approximately of $10,000 to $15,000 by fire, which burned all around them, but providentially spared the company's buildings with their heavy stocks.

The other houses, Baker & Hamilton, Dunham, Carrigan & Hayden Company, Holbrook, Merrill & Stetson and W. W. Montague & Co., so far as at present advised, have lost everything but portable valuables and a great reserve of courage, ability and energy, with resources, it is believed, which will enable them to resume business immediately. All of the concerns named have reported no loss of life and all well at time of wiring, soon after the beginning of the disaster. A brief message from the Pacific Hardware & Steel Company, dated Oakland, April 21, received in New York 24th inst., announced "All safe; commence business Saturday (21st)."

Baker & Hamilton advise that their San Francisco store and warehouses were totally destroyed, but that as early as practicable business will be resumed at that point. They also request that for the present all goods for San Francisco be shipped to their Sacramento house by railroad direct, marked: B. & H., S. F., care Baker & Hamilton, Sacramento, Cal. These instructions apply to all San Francisco orders, whether originally routed via "Cape Horn," "Panama" or "Railroad." It is also directed that all Sacramento orders be, for the present, sent by railroad direct to Sacramento.

The Dunham, Carrigan & Hayden Company, in a message from the senior partner, Brace Hayden, dated Oakland, April 19, and received in New York on the 21st, states that stock ledgers, important books and documents were saved; that the concern was fully insured and that all of the force was then in good health and hopeful. From another source we understand that headquarters were quickly established in the rear end of a barn back of the residence of Brace Hayden, in Oakland, across the bay. Andrew Carrigan's house in the residence section escaped, although the fire came within a few feet of it. The stores of Holbrook, Merrill & Stetson, and W. W. Montague & Co. were destroyed, the latter house reporting as late as April 22 all safe.

J. C. McCarty & Co., 10 Warren street, New York, have received a telegram from Hughson & Merton, their San Francisco representatives, reading: "All records destroyed. Have different factories express to San Francisco catalogues, prices and necessary samples."

Relief Fund.

Relief measures have been both prompt and generous, most of the Hardware houses in the country, in common with other trades, making haste to forward in the most expeditious way funds and supplies to relieve immediate necessities, thus showing in a practical and helpful way their sympathy.

THE MANUFACTURERS OF NEW BRITAIN, CONN.,

called a meeting last Saturday for the purpose of raising money for the sufferers at San Francisco, the outcome of which was a quickly raised fund of $10,000, which it was decided had best be transmitted through Baker & Hamilton, Sacramento, telegraphic advice of which was sent them Monday, 23d. The meeting was held at the office of P. & F. Corbin, and was attended by representatives of the following concerns, Philip Corbin presiding: Landers, Frary & Clark, Humason & Beckley, Minort & Corbin Box Company, National Spring Bed Company, New Britain Machine Company, North & Judd Mfg. Company, Russell & Erwin Mfg. Company, Skinner Chuck Company, Stanley Rule & Level Company, Stanley Works, Traut & Hine Mfg. Company, Union Mfg. Company, Corbin Cabinet Lock Company, Corbin Screw Corporation and P. & F. Corbin. A committee was appointed, consisting of Philip Corbin, L. H. Pease, George M. Landers, Mayor of New Britain; C. E. Mitchell and Howard S. Hart, to take charge of the fund and see to its proper transmission, which was accomplished at once, as by special effort they were enabled to get into prompt telegraphic communication with Sacramento. A further fund is also being raised by the citizens generally of New Britain.

SARGENT & CO.

The house of Sargent & Co., New Haven and New York, subscribed $10,000 Monday, through the Chamber of Commerce, New York.

NEAL-CHALLEN-SCOTT COMPANY.

NEAL-CHALLEN-SCOTT COMPANY, 48 Warren street, New York, has been incorporated under New York State laws to deal in Hardware, Supplies, Tools, Machinery, Transmissions, Specialties, &c. Following are the officers of the new company: Bernard B. Neal, president; Joseph W. Scott, vice-president, and Paull J. Challen, secretary and treasurer. Mr. Neal, founder of the Neal & Brinker Company of New York and its president for the past nine years, will give his entire time to the business of the new company. Mr. Scott, who has had extensive experience in the Tool and manufacturers' supply line, will manage this department of the company. Mr. Challen, a mechanical engineer of ability, is conversant with mill requirements and has had wide experience and is thoroughly familiar with quality and prices of transmission machinery, engines, boilers, &c. The aim of the company will be to give prompt service and to handle only articles of the highest grade in the various lines covered. The company can now execute all orders, however large, and make shipment from New York stock or mill. The company will be glad to receive from manufacturers of lines in which they are interested catalogues in duplicate, with full advices in regard to quotations and terms.

I. H. SIMPSON, 286 Amsterdam avenue, New York, is marketing a new burglar alarm, for which an application for a patent has been made. It may be placed in any part of a house and can be attached to scuttles, skylights, windows and doors, being easily detached and replaced elsewhere if desired. No wires or batteries are required. It has a 5-inch loud toned gong, which will be set ringing by any one trying to enter the house and will continue ringing until turned off. It is guaranteed for five years.

THE Hardware business of the late H. C. Girard, Lowell, Mass., has been incorporated in Massachusetts with a capital stock of $8000. The officers are: President and treasurer, Frederick A. Lamoureux; clerk, Robert J. Crowley; directors, these officers and Annette A. Girard and S. L. Dow. The company will continue Mr. Girard's manufacturing business, including Flour Barrel Swings, Wire Goods and Novelties and the Hardware and Mill Supply business at 442 Merrimack street.

The Hardware Store of Neal & Brinker Company.

FOURTH ARTICLE.

PREVIOUS articles of this series have described methods of displaying Hardware samples in the store of Neal & Brinker Company, New York, and the means used to fasten them on the outside of drawers, shelf boxes, &c. An excellent idea of the appearance of the shelving and the effectiveness of the samples may be gained from the photograph reproduced in Fig. 18. This affords a view of the side wall from a point about the middle of the floor, the front being indicated by the strong light thrown on the wall case at the extreme right of the cut. The photograph also includes the Screw and Nail bin counter, which will be described in a later article; samples of Coffee Percolators, Chafing Dishes and Hollow Ware, samples of Vises, desks for the use of clerks and the stairway leading to the basement. The shelving contains, among others, such goods as hollow handle Awl and Tool Sets, which are kept in shelf boxes illustrated in Fig. 19. It will be observed that these are displayed so as to show at a glance all the tools comprised in each set, thus greatly assisting a salesman in talking about them and aiding a buyer in selecting the set best adapted to his requirements. The handles are fastened by loops of wire drawn through small holes in the box front and twisted together on the back, as described in the previous article, while the little tools are pinned on with staples in some symmetrical arrangement.

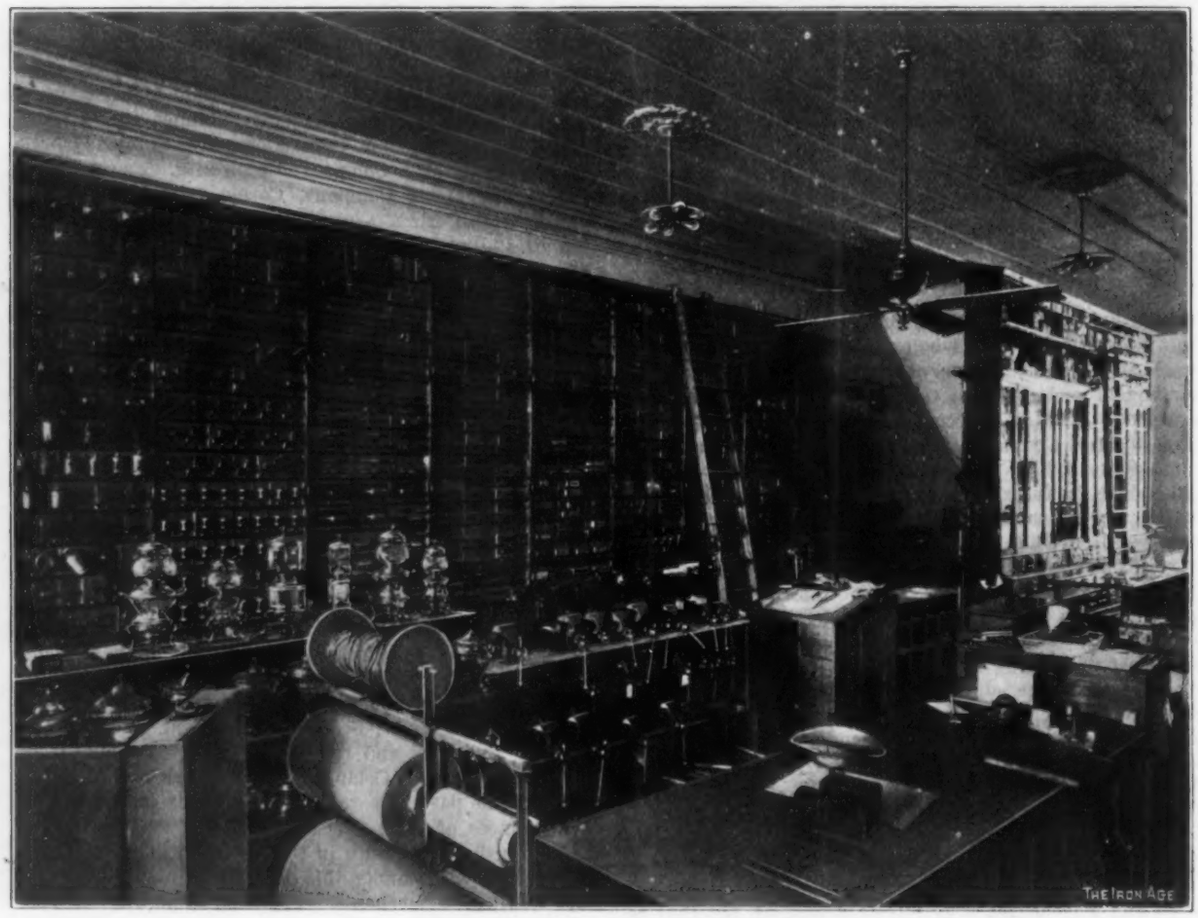


Fig. 18.—View of First Floor from the Rear.

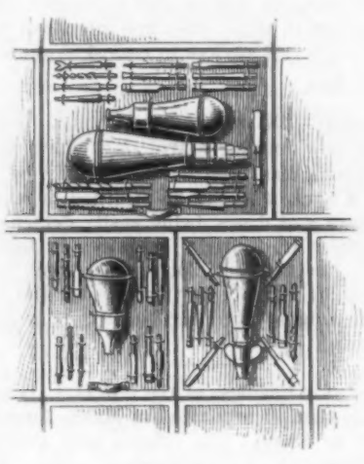


Fig. 19.—Method of Arranging Sample Awl and Tool Sets.

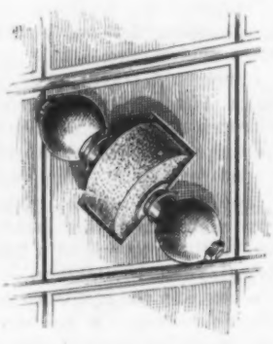


Fig. 20.—Sample of Emery Wheel Dresser, Showing Shelf Box Cut Away.

Ingenuity is Shown

in putting up many samples which at first thought would not seem adapted to the prevailing method of display.

For instance, the Emery Wheel Dresser, illustrated in Fig. 20, is somewhat awkward to handle. A hole, however, cut through the front of the shelf box receives a part of this bulky article and admits of wiring it firmly at both ends. Oilers, Fig. 21, also shown in Fig. 18, are

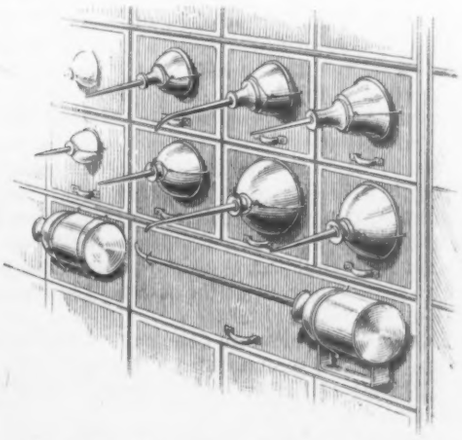


Fig. 21.—Oilers Wired to Front of Shelf Boxes.

affixed with bottoms flat against the sides of the boxes and their spouts projecting outward horizontally. They are held in place by wire twisted around the spouts where they screw into the cans, carried through the wood on either side and fastened behind. This arrangement makes it possible to tell at a glance their comparative size and length of spout. Where spouts extend out too

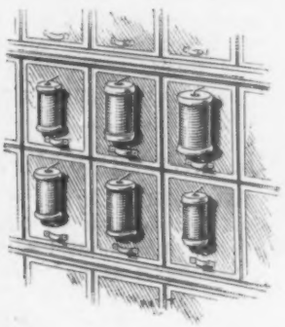


Fig. 22.—Method of Fastening Spool Wire.

far, as in the case of the Engine Oiler, at the bottom of Fig. 21, they are fastened parallel with the box fronts. Fig. 22 illustrates a section of the shelving devoted to various kinds and gauges of Spool Wire, also appearing

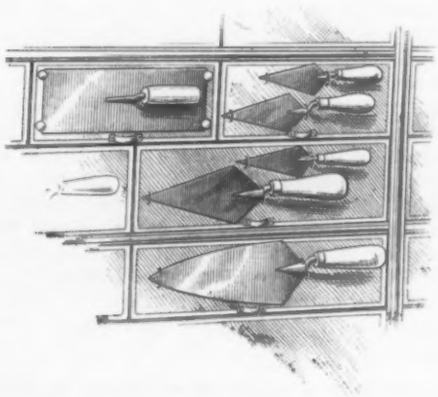


Fig. 23.—Shelf Boxes Containing Trowels.

in the photograph, Fig. 18. The contents of each box is shown by a sample on the front, which is easily fastened by running the wire loop through the center of the spool. The method of showing and attaching Trowels, which are included in Fig. 18, is illustrated in Fig. 23. Masons' Trowels are most naturally fastened to the shelf boxes by the wire loops, but Plasterers' Trowels are more conveniently disposed of by driving Brass Headed Tacks at each corner, as indicated in the cut, so that the heads of the

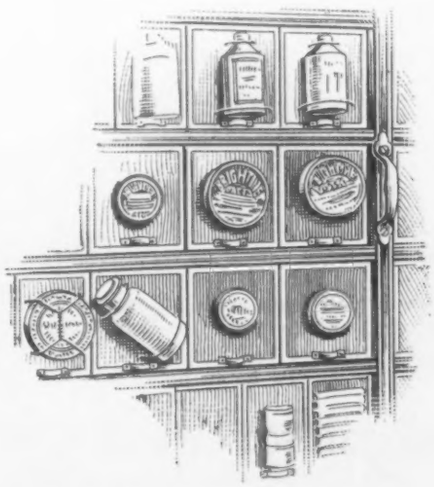


Fig. 24.—Metal Polish, Soldering Salts, &c.

Tacks lap over the blade of the Trowel. Metal Polish and Soldering Salts, appearing at the left of Fig. 18, are goods which would seem rather awkward to display on the shelf boxes, but are taken care of, as shown in Fig. 24. Wire loops are fastened around the necks and bodies

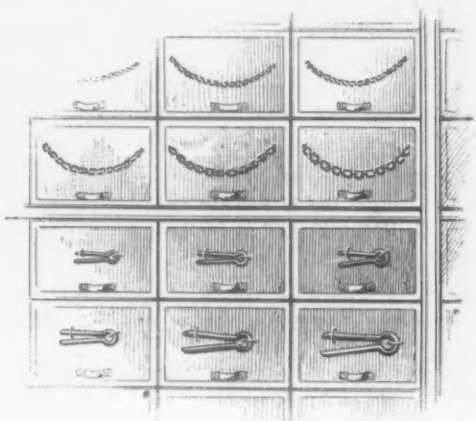


Fig. 25.—Shelf Boxes Containing Safety Chain and Spring Cotters.

of the cans, while the round, flat boxes are held in place by a wire rack formed by making two loose loops running vertically on either side of the box and twisting them together in the center. Some cheap samples of this kind are attached by brads driven through them into the

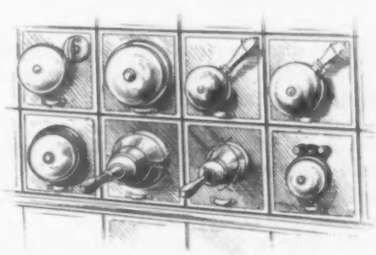


Fig. 26.—Samples of Bells and Gongs.

shelf boxes. Tasteful samples of brass and iron Safety Chains caught at the ends with tacks, and of Spring Cotters of different sizes, held in place by two wire loops, are shown in Fig. 25. Bells and Gongs, Fig. 26, are shown in an attractive manner, the former being held against the shelf boxes in a horizontal position by wire twisted around their handles and drawn taut on either side. To economize room in the shelf boxes, larger sizes of Bells have the handles removed and are nested. Sam-

ples of Gongs are put on with screws, as in actual use, and when operated by turns the latter are also shown as in the cut. A complete Electric Bell outfit is shown in Fig. 27, consisting of a dry battery and coil of wire,

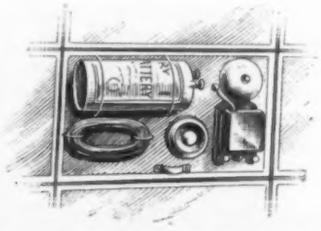


Fig. 27.—Electric Bell Outfit Set Up on Front of Shelf Box.

which are held by loops, with bell and push button properly attached and connected, so that a pressure of the bottom will ring the bell.

(To be continued.)

REQUESTS FOR CATALOGUES, &c.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM JAMES D. VOLTZ, Washington, D. C., who will add general Hardware and supplies to his Tool business.

FROM H. CLAPP, who has bought the Hardware, Stove and Sporting Goods business of B. L. Tripp, Steele City, Neb.

FROM NORDQUIST HARDWARE COMPANY, which has moved from Springfield to Holdrege, Neb.

FROM EDGE-ASHBY HARDWARE COMPANY, Hanson, Ky., which has bought the Hardware and Implement business of H. F. G. Rothrock and is in the marked for goods to increase stock.

FROM A. J. BICKNELL, who has bought the Hardware business of Chas. A. Wright, Freewater, Ore.

FROM WILLARD E. ALTER, Pittsburgh, Pa., who has added a tinning and roofing department to his Hardware, Stove and Implement business, and moved to larger quarters at 5817 Penn avenue.

AMONG THE HARDWARE TRADE.

Fordyce Hardware Company, Fordyce, Ark., has lately incorporated with a capital of $25,000 to conduct a wholesale and retail business. The officers are W. T. Graham, president; R. P. Graham, vice-president, and E. Smith, secretary-treasurer.

Dan G. Clark, Jr., has succeeded to the Hardware, Implement, Paint and Sporting Goods business of Clark & Jennings, Nashville, Tenn.

Longhorst & Lallman Bros., Fontanelle, Neb., will put in a new and complete line of Hardware in addition to other stock.

Leechburgh Hardware Company, Leechburgh, Pa., is moving into a large and finely appointed new store.

Branson & Max have engaged in the Hardware, Stove, Implement and Sporting Goods business in Cœur d'Alene, Idaho.

The Hardware store of Hill & Martin, Independence, Mo., has been slightly damaged by fire.

J. A. Miller and De Vane Supply Company, both of Breward, N. C., have combined their business under the style of Miller-De Vane Supply Company.

CHANGES IN THE HARDWARE DISTRICT.

THERE is a pronounced movement among houses in the electrical supply trade in New York City from the neighborhood of Cortlandt and adjacent streets into what has long been Hardware territory, including mainly Park place, Murray and Warren streets. Among changes about to be made in addition to those mentioned in recent issues is the removal of the Western Electric Company's branch house from 22 Thames street to the entire building at 17 Murray street, as soon as it can be prepared for its use. Stanley & Patterson, now at 40 Cortlandt street, manufacturers of general electric equipment and supplies, with factory at 35-37 Vesey street, are renovating the store floor and basements at 23 Murray street for use in the immediate future. The Electrical Club, following the upward movement, has just fitted up commodious quarters in the Kalil Building, 14-18 Park place, having taken the entire second floor above the street. The membership of the club is now about 200.

The Columbian Hardware Company, 14 Warren street, has taken the first, second, third and fourth lofts at 168 Church, between Chambers and Reade streets. The offices will be located in the first, and the remaining floors will be used for storing stock. Arthur G. Sherman, who has long had his office with the Columbian Hardware Company, will likewise have an office at the above address, having moved with them. Mr. Sherman represents the Ames Shovel & Tool Company (Wright Shovel Company plant, Richmond, Ind.) and the Pullman Mfg. Company, Rochester, N. Y. J. Curley & Bro., 6 Warren street, are fast getting their new store at 318 Broadway, corner Pearl street, ready to move into. Charles J. Godfrey, dealer in Fishing Tackle and Sporting Goods, will on or about May 1 remove from 4 Warren street to 111 Chambers street. The Hardware Board of Trade, now at 4 Warren street, will about May 1 remove to the Graham Building, corner of Duane and Church streets, where quarters will be taken on the eighth floor.

PAUL RICHARD KAMPFE.

PAUL RICHARD KAMPFE, a member of the firm of Kampfe Bros., 8 Reade street, New York, manufacturers of Star Safety Razors, died Saturday, April 21, at his residence, 184 Euclid avenue, Brooklyn, of heart disease. Mr. Kampfe, who was one of three brothers constituting the firm, was born at Witchdorf, Germany, August 22, 1853. In the early 70's he followed his brother Frederick Kampfe to New York, and with another brother, Otto, engaged in business as machinists at 114 Centre street, where a curious circumstance led to the invention of the first successful safety razor, the firm having recently celebrated the first quarter century of the establishment of what is now its only business, with shipments of goods going to all parts of the world. Mr. Kampfe is survived by a widow, two sons and three daughters.

WHITON HARDWARE COMPANY, Seattle, Wash., is distributing among its customers a 352-page catalogue of Metal Workers' Tools and Machine Shop Supplies. The company states that this catalogue is the first of the kind issued by the Pacific Northwest. It covers a stock of exceptional completeness from which patrons can be supplied without inconvenience or delay. Great care has been devoted to the arrangement of the catalogue, all goods of the same class being grouped together, and tables and other information in the back make it a convenient and valuable reference book for the trade.

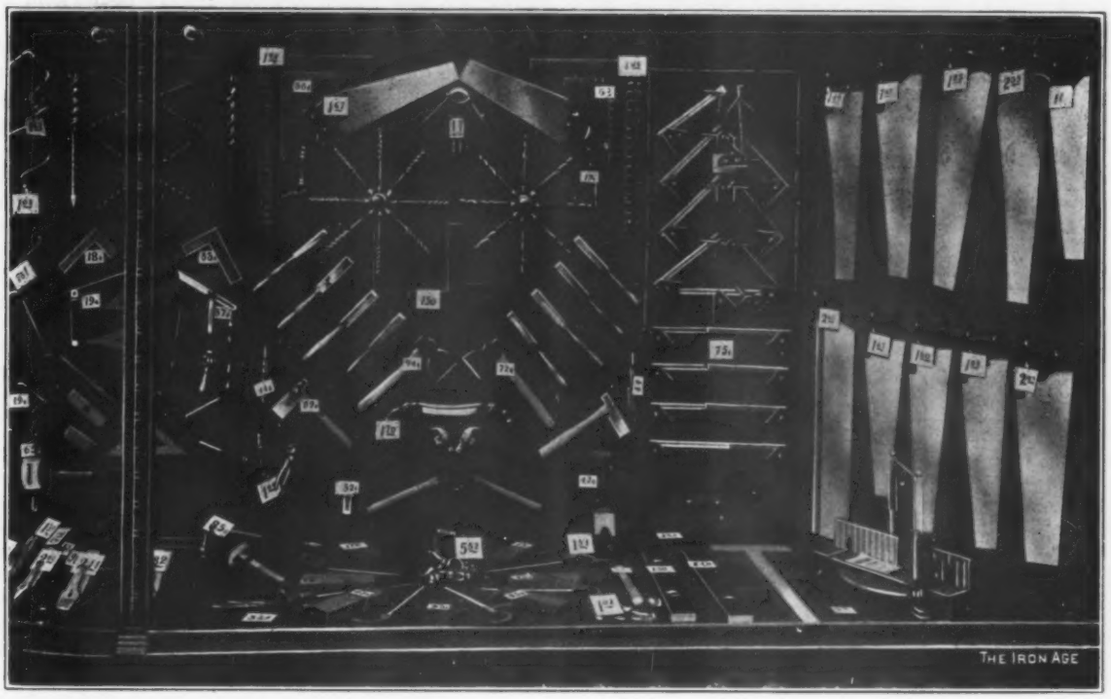
AT a meeting of the stockholders of Ossawan Mills Company, Norwich, Conn., manufacturer of Picture, Shade and Sash Cords, Clothes Lines, Hangers and Hooks, held Saturday, April 14, the following officers and directors were elected: President and treasurer, Emerson P. Turner; secretary, A. T. Sullivan; Messrs Turner, Sullivan and R. W. Perkins, directors. This company was established in 1860 and incorporated in 1879. The former officers were W. A. Breed, president, and F. C. Turner, secretary and treasurer.

TRADE WINNING METHODS.

This department is for the description of approved methods of carrying on and extending business, and a cordial invitation is given to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.

WINDOW DISPLAY OF TOOLS.

BY courtesy of Churchill Hardware Company, Galesburg, Ill., we are able to reproduce herewith a photograph of a window display recently installed by the company. It was composed entirely of Tools. The feature of the display was that every Tool had the price marked on it in plain figures large enough to be read from the outside. The effectiveness of this idea in stimulating trade is evident from the fact that during two weeks while the display was in the window more Tools were disposed of than had been sold in the preceding two months. Such practical results have encouraged this aggressive firm, as well as many others, to give more attention to this form of advertising, which is inexpensive and within the reach of every Hardwareman.



Window Display of Churchill Hardware Company.

THE SALE OF SPORTING GOODS.

BY E. T. K.

DURING the shooting season the retailer will find the grouping of Gun Equipments makes an attractive display that greatly aids in selling the goods. For instance, erect a wood partition, say, 9 feet long by 4½ feet high, across the back of the show window, cover this with green burlap—a dead grass shade would be more appropriate, but it won't make as effective a background.

By means of a perpendicular chalk line divide the partition into two equal squares. Within each of the squares inscribe another square whose sides are 6 inches shorter. Use these smaller squares as outline guides for a border of empty Paper Shot Gun Shells with their heads resting on the line, arranged as shown in the illustration herewith.

Fired Shells.

These may be fastened to the background by a Wire Nail driven through a hole punched in each Shell with a Brad Awl. If the proprietor of the establishment has any friends who belong to shooting clubs he can get the Fired Shells, which always accumulate on the field during a trap shoot. By being a little careful in the selection of these he will find that it is easy to accumulate a collection in condition sufficiently good to be valuable for decorative purposes.

When the Shells are all in place the dealer will have two panels appropriately framed for a display of sportsmen's outfits.

In Panel No. 1 Show

a moderate priced Single Barrel Shot Gun, a Gun Case, a Canvas Cartridge Belt, a Light Weight Shooting Coat, a Canvas Shooting Hat, a low priced Cleaning Rod, with a set of Cleaning Tools. This is an outfit that will catch the eye, and the whole combination can be marked at a moderate price.

In Panel No. 2 Show

a medium grade Double Barrel Hammerless Shot Gun, a Corduroy Coat and Hat, a well made Ammunition Bag, a Cocobolo Cleaning Rod and Implements. Let the Gun case in this panel be of leather, retailing somewhere in the neighborhood of $5 or $6, and you have an exhibition that will draw the attention of every man and boy in town.

The goods being at the back of the window will not interfere with the display of Hardware and Tools which may be shown in front of them, and the panels can be arranged to hoist by Pulleys toward the ceiling, to allow the entrance of the window dresser.

In the center of each panel affix with four Brass Thumb Tacks a placard nicely lettered, giving a briefly itemized description of each article shown in that panel, together with the price at which you will retail it, then at the foot of the placard give a lump sum showing the price at which you will sell the entire outfit as shown, and let the amount be a trifle less than the aggregate cost of them if purchased individually.

Change the Exhibition Every Week,

showing different styles of Guns and also of accessories when possible. Copper Screw Coat Hooks will serve for hanging all of the articles with the exception of the Guns. The best way of hanging the Firearms is by means of three loops made of Heavy Russet Leather. Straps secured to the board by means of Round Headed Brass Bolts passing entirely through the partition and held with Nuts and Washers at the back. A Bur or Washer between the leather of the Strap and the screw head will add

much to its security. Arrange these loops so that one comes near the end of the barrel, one just behind the trigger guard, and the third midway between the other two.

This is a far better method than hanging on Metal Hooks or Chains or Wires, which are apt to mar the Gun. Firearms displayed in this manner and kept in the window not longer than a week run very little chance of becoming shop worn, as they can safely be put back into stock for sale.

The Capabilities of Such a Display

partition for Sporting Goods are unlimited. You can show special Quail Outfits, Snipe Outfits, the latter different from the former in the substitution of Light Weight 16-Gauge Guns and the addition of a pair of Light Weight Rubber Boots.

In the duck shooters' outfit show heavy 12-gauge Choke Barrel Guns or, better yet, 10 bores, heavy Sweaters, Dogskin Jackets and metal or leather Shell Cases for holding ammunition. It can also be used for displaying Rifles, Rifle Telescopes, Sights, Rifle Cartridge Reloading Tools, Cleaners, Bullet Molds, Melting Pots and a hundred more things in which the Rifle crank delights. For the Rifle exhibition empty Brass Cartridge Shells set in loops of Brass Wire make a more appropriate display.

During the Fishing Season

such a partition can be used to display Rods, Reels, Lines, Creels, Tackle and Fly Boxes, Tackle Cases, Landing Nets and Minnow Seines. In fact, a Minnow Seine draped over the partition to serve as a background for the tackle will prove a very effective method of setting off the display.

In a section where woodchuck are fairly plentiful one of these rodents stuffed and mounted on a bracket on the center of the panel, with a neatly lettered placard, "Woodchuck are ripe" just beneath and surronnded by various styles of 25-rim and center-fire Rifles, Telescopic Sights and specimen Cartridges, would prove almost an irresistible temptation to purchase these, particularly if the price of each Firearm appears just beneath it on a neat placard.

Stuffed Specimens.

Endeavor if possible to have a stuffed specimen of each of the principal kinds of small game to be found in the vicinity. Keep pretty close tab on the game laws, and during the open season for each species of game take particular pains to see that each variety has an exhibition period on the display board, surrounded by the weapons most suitable for its taking off and the articles of equipment most useful for that particular kind of shooting.

Keep in Mind

that lightweight single or double barrel 16-gauge Shot Guns, cylinder bored to give a wide spread of shot, are particularly adapted to snipe shooting.

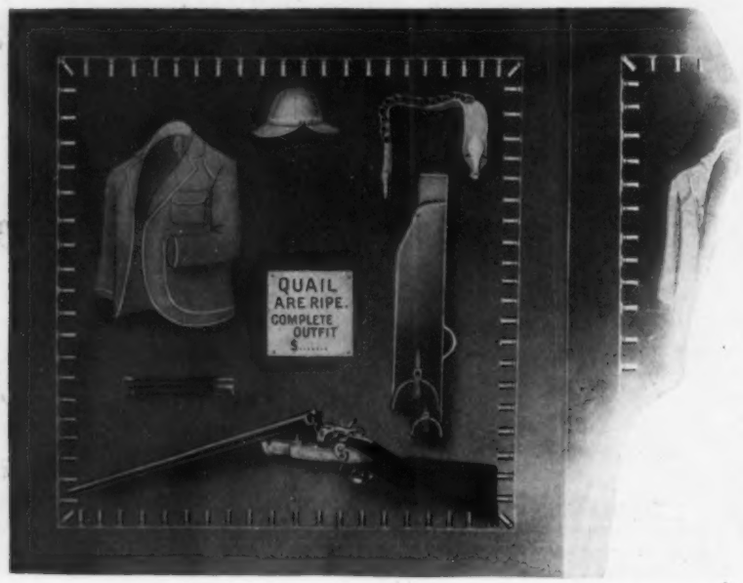
The snipe shooter who frequents swampy, boggy places and the shore would be a good customer for Waterproof Boots, and shooting early in the season he would probably like a very light drill Shooting Coat, moderately waterproofed as a protection against a shower, but required principally as a convenience in carrying ammunition and serving as a game bag.

The average quail shooter tramping over fields wants a light or medium weight 12-gauge modified Choke Gun, giving a closer pattern than required for snipe, and the quail shooter can use, in addition, a pair of heavy soled, stoutly made Shoes or Boots.

To the duck shooter sitting in his blind or duck boat the weight of a weapon is of little importance compared with its ability to carry heavy charges with little recoil and putting a heavy load of large shot into a small circle. For this man a 10-gauge 8½ to 9 pound gun, with a rubber or leather recoil pad, is an ideal weapon.

Of course, if a man can't specialize and must make one gun do for all his shooting, a 6½ to 7 pound 12-gauge, both barrels modified choke, with the left barrel shooting closer than the right, would prove about the best all around arm.

It can be used on snipe, quail and duck; it won't give the best results on any one of the three species of game, but it will do better on duck than a 16-gauge snipe gun, and would be far more satisfactory for snipe shooting than a 10-gauge ducking gun, while it would show at its best on quail.



Wood Partition Window Display of Sportsmen's Outfits.

DEATH OF WILLIAM D. ZEHNDER.

WILLIAM D. ZEHNDER, president and general manager of the Scranton Bolt & Nut Company, Scranton, Pa., died on the 19th inst., after an illness of less than a week, from meningitis. Mr. Zehnder was born 49 years ago near Danville, Pa. With his brothers he learned the iron business in Danville, Reading and Lebanon. In Lebanon he was employed as sales agent of the Pennsylvania Bolt & Nut Company, which plant is now part of the American Iron & Steel Mfg. Company. This position he held for 15 years, or until seven years ago, when he resigned to go to Scranton to found the Scranton Bolt & Nut Company. It was mainly through his ability and effort that the company had prospered, necessitating enlargement from time to time until now the plant is one of the largest of its kind in the State.

Mr. Zehnder was prominent in the business and social life of Scranton, and was one of the city's most valued

citizens. He was vice-president of the Wilmington Iron Company of Wilmington, Del.; vice-president of the Zehnder Valve & Brake Mfg. Company and director of the Third National Bank, both of Scranton. He was a member of several clubs in Scranton and New York, among them being the Scranton Club, the Country Club and Engineers' Club of Scranton, Scranton Board of Trade, and Engineers' Club, Lawyers' Club, Hardware Club and the New York Athletic Club of New York City. Mr. Zehnder was an enthusiastic automobilist.

Besides his widow and one son, Hillary, Mr. Zehnder is survived by his father and three brothers, E. M. Zehnder, superintendent of the Scranton Bolt & Nut Company; C. H. Zehnder of Philadelphia, and George Zehnder of Berwick, and two sisters, Mrs. E. J. Donnelly of Pittsburgh and Mrs. Henry M. Lyons of Norfolk, Va.

ASSOCIATION NOTES.

IN a circular recently issued by the Iowa Retail Hardware Association, A. R. Sale, secretary, Mason City, reference is made to the marked growth of the organization during the past year, and the splendid attendance of 500 merchants at the annual meeting, held in February last, at Des Moines. During the ensuing year effort will be made to add 400 names to the membership, which would bring the total almost to a thousand, thus making the work of the association very much more effective than at present. Nonaffiliated merchants are reminded of the benefits conferred by membership in the association, especially in the way of obtaining insurance at a material saving, as compared with stock company rates. The mutual insurance department conducted under the auspices of the association is now carrying risks aggregating more than $1,000,000, and the cash rebate for 1906 is 35 per cent. of the premium paid.

The Illinois Retail Hardware Association is distributing a folder in which detailed information and contract for space are furnished in connection with the Hardware show, which will be a feature of the next annual meeting of the Illinois Retail Hardware Association, which will be held in the mammoth Coliseum Building, in Chicago, February 13-15, 1907. The rules and regulations thus set forth are referred to as having been adopted after consultation with a large number of the exhibitors at the show held in February last. They are said to be as concise and reasonable as possible, and only made for the purpose of insuring the success of the exhibition. Gustav R. Lott, 1002 West Lake street, Chicago, is the manager of the show.

LORING COES, the veteran founder and head of the Coes Wrench Company and Loring Coes & Co., Incorporated, Worcester, Mass., and the inventor of the Screw Wrench, was 94 years old Sunday, April 22. Mr. Coes is in excellent health considering his advanced years. The day was quietly celebrated in the family, the gathering being augmented by a number of old friends who called to extend their congratulations. Although Mr. Coes began his career as a manufacturer nearly 70 years ago, he is still active in the affairs of the above companies. Even within the past year he has been industrious as an inventor. He is a wonderful example of mental as well as bodily vigor.

M'CRAY REFRIGERATOR COMPANY, Kendallville, Ind., has issued catalogue No. 81, illustrating and describing Refrigerators for residences. In lining Refrigerators with opal glass or tile, all joints are carefully fitted and joined together with Keene's cement, to make it impossible for anything to get between or back of the lining. The doors to the provision chambers are also lined with the same material as within the Refrigerator. The walls are constructed with three thicknesses of lumber, three thicknesses of heavy moisture proof insulating paper, and a filling of mineral wool. Beneath the tile or opal glass lining is another thickness of heavy insulating paper, which also serves as a cushion for the lining.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our catalogue department in New York; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

THE ENTERPRISE MFG. COMPANY, Philadelphia, Pa.: Catalogue relating to Food and Meat Choppers, Sausage Stuffers, Lard and Fruit Presses, Grinding and Pulverizing Mills, Smoked Beef Shavers, Cheese Cutters, Tobacco, Root and Herb Cutters, Tincture Presses, Lawn Mowers and Sprinklers, Meat Juice Extractors, Fruit, Wine and Jelly Presses, Cherry Stoners, Sad Irons, &c.

SCHAPER CONSTRUCTION MATERIAL COMPANY, 136 Liberty street, New York: Illustrated catalogue No. 1, devoted to Telephone, Telegraph, Electric Light and Street Railway Pole Line Construction Material.

ROLLMAN MFG. COMPANY, Mount Joy, Pa.: Catalogue No. 1160, of household specialties, including Meat and Food Choppers, Peanut Butter Machines and Spice Mills, Cherry Seeders, Apple Cutters, Peach Stoners and Potato Cutters.

THE GREYSTONE MFG. COMPANY, Greystone, Conn.: Catalogue illustrating Key Chains, Key Rings, Dog Leads, Safety Snaps, Fancy Trunk Trimmings, &c. The company also manufactures Light Metal Hardware Specialties to order.

WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn.: Revised price-list of Shot Gun Shells with black or smokeless powder loads.

BERGER BROS. COMPANY, 237 Arch street, Philadelphia, Pa.: Catalogue and price-list relating to Tinners' and Roofers' Supplies, Tin and Terne Plates, Eave Gutter and Pipe, Gutter and Pipe Hangers, Pipe Hooks and Fasteners, Steel Roofing and Siding, Tinners' Machines and Tools, Galvanized and Copper Cornice Work, Malleable and Gray Iron Castings, Tinning, &c.

GEETZY COMPANY, 211 East Madison street, Chicago, Ill.: Illustrated pamphlets devoted to Sash Ventilators and Indoor Air Moisteners.

MONARCH GRUBBER COMPANY, Lone Tree, Iowa: Catalogue of Grub Stump Pulling Machinery and other appliances for clearing timber lands, and Pitless Wagon Scales.

R. M. BALL, Muncie, Ind.: Booklet, entitled "The Favorite Way on Wash Day," referring to New Favorite Washers.

UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn.: Price-list of U. M. C. Loaded Shells, Standard Loads.

INDEPENDENT REGISTER COMPANY, Cleveland, Ohio: Catalogue and price-list of Semi-Steel Registers, Ventilators, Borders, Faces, &c.

MERIDEN BRITANNIA COMPANY, Meriden, Conn., International Silver Company, successor: April issue of house organ, "The Silver Standard," referring to 1847 Rogers Bros.' Silver Ware.

JOHN C. KUPFERLE, St. Louis, Mo.: Catalogue No. 22 referring to Water Work Specialties, Yard, Wall and Fire Hydrants, Street Washers and Cast Iron Goods.

PETERS CARTRIDGE COMPANY, Cincinnati, Ohio: Price-list of Metallic and Shot Gun Ammunition, Primers and Gun Wads.

ONEIDA NATIONAL CHUCK COMPANY, Oneida, N. Y.: Catalogue of National Lathe and Drill Chucks.

GEO. S. KNAPP, Bridgeport, Conn.: Special price-list of Art Metal Goods for 10-cent counter trade, including Stationers' Hardware, Photo Frames, Match Holders, &c.: also circular referring to Gravity Broom Holder.

THE SIMONDS MFG. COMPANY, Fitchburg, Mass., and 40 Murray street, New York: Two small, handy illustrated catalogues, of a character supplementary to the larger complete catalogue. One of 80 pages relates to various kinds of Saws, Machine Knives, Saw Tools and accessories. The other, of 117 pages, appeals more to mill men and describes Saws and Machine Knives.

MISCELLANEOUS NOTE.

The New Era Passenger Elevator.

Sidney Elevator Mfg. Company, Sidney, Ohio, is manufacturing an elevator for the use of one person, which runs with scarcely any effort on the part of the passenger, who balances himself by shifting weights furnished for that purpose. It is remarked that all the power necessary to move the elevator is that required to overcome the friction in the machine, which is practically nothing. The elevator was originally intended principally for tall buildings, such as grain elevators, for the use of superintendents in making quick and easy trips to the different floors of a building. These elevators have been furnished in considerable numbers, however, for use in private houses, to be used by women, saving them the laborious climbing of stairways, being substituted for back stairs. Where the passenger accompanies the load light freight can be carried. The company make a specialty of band elevators, belted power elevators and the single belted type of electric machines.

The Empire Punch Knife.

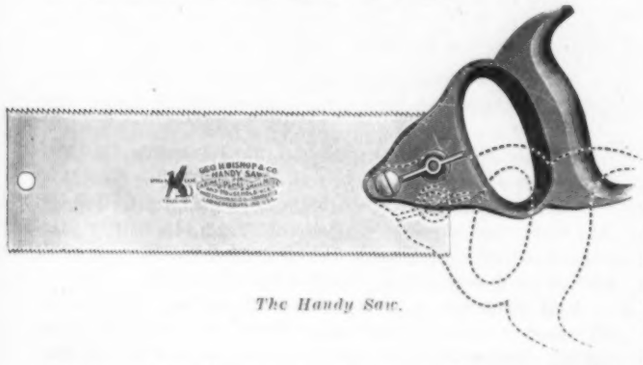
The Empire Knife Company, Winsted, Conn., is placing on the market pocket knives with an improved gouge blade, as shown herewith, on which a patent has been

The Empire Punch Knife.

applied for. This blade is forged from best cutlery blade steel, with a round back and a cutting edge. The latter can be ground and kept keen and sharp, so that by a turn and slight pressure it will cut a smooth hole of varying size. The knives are designed for use in mills and factories, for horsemen and harness makers and for general use about the farm and stable. The punch knife is finished in ebony and stag, with one regular blade, as shown in the cut, and also with two regular blades.

The Handy Saw.

Geo. H. Bishop & Co., Lawrenceburg, Ind., are introducing to the trade the handy saw, illustrated herewith.



The Handy Saw.

The saw is really two saws in one, and is put on the market at a popular price. It serves equally well for panel, cabinet, small mitre and general household use. The handle is so constructed and attached to the blade as to allow it to be swung upon its pivot to one side or the other, and yet held firmly in its position for cross cutting or rip sawing. The blade is made of fine steel of sufficient stiffness for durability and is toothed on one edge for cross cutting and on the other side for rip sawing. The saws are made in six lengths, warranted and are put up in cartons containing one-third of a dozen.

Columbian Wrought Steel Tubular Registers.

The Columbian Hardware Company, Cleveland, Ohio, New York office 168 Church street, has recently placed on the market tubular wrought steel registers, as shown in

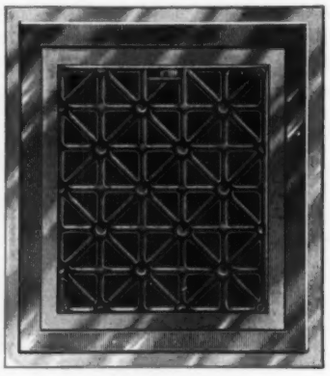


Fig. 1.—Columbian Wrought Steel Tubular Register.

the accompanying cuts. The face of the register is made in Grecian design, of a top and bottom plate of heavy sheet steel so closed over each other as to give tubular construction. It is pointed out that this contributes more supporting strength than if the face was made from sheet metal equivalent in thickness to the two plates used and that the faces are so strong that no supporting bars or braces are necessary. It is further remarked that the tubular construction enables the faces to withstand a sudden blow, strain or jar without warping or cracking, besides being 50 per cent. lighter than cast registers and consequently saving that percentage in freight charges. The register boxes are shallow, permitting them to be used in side walls, as well as in floors and ceilings, the

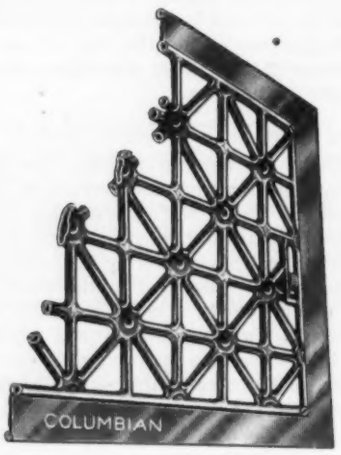


Fig. 2.—Columbian Register, Showing Tubular Construction.

one line enabling merchants to meet all requirements. One end of the box, instead of being riveted, is fastened with a small set screw, and by taking out this screw the frame may be removed. The fans are referred to as operating smoothly, lapping over each other and fitting the box snugly, leaving no open spaces for air to come through when closed. The borders are stamped out of heavy steel with corners securely reinforced. The slots for tin box loops are located as in the standard cast iron borders. The borders are beveled, which is alluded to as making them strong and rigid, while they are furnished in a variety of handsome finishes.

Wall Rack.

The wall rack illustrated herewith is manufactured by Ideal Register & Metallic Furniture Company, Detroit, Mich., It is furnished in oxidized copper or dead black finish and in three designs, as follows: No. 1, extreme hight, 20 inches, projecting 4 inches from wall base; No. 3, extreme hight, 10 inches, having two hooks and a match box; No. 4, extreme hight, 12 inches, having three hooks. These racks are described as ornamental in appearance and adapted to many places where strap racks, standing racks, &c., would be unsightly or inconvenient.

Wall Rack.

Wolf Steam and Air Drill Coupling.

Boston Woven Hose & Rubber Company, Cambridge, Mass., has lately improved its Wolf coupling, perspective and sectional views of which are given herewith. It is strong, heavy and designed to stand the roughest usage. The clamps are made of malleable iron, the bolts of best Swedish iron and the seat of the coupling of brass. By referring to Fig. 1, it will be observed that the beveled piece is hinged on two ears or lugs. These are cast directly onto the tail of the coupling, making the beveled piece stationary and doing away with any lateral movement. Heretofore these beveled pieces were attached to a round collar and there was some slight liability of their slipping sideways. Fig. 2 shows the clamps and wedge shaped pieces, the latter serving the double purpose of pressing the hose firmly against the tail of the coupling and of holding it to prevent it from blowing out. Tightening the bolts produces a uniform pressure around the entire circumference of the hose, so that the joint is said not to leak under any circumstances. It is also said that the coupling may be easily attached by any one with the aid of a wrench, having nothing complicated in its construction and requiring no special tools.

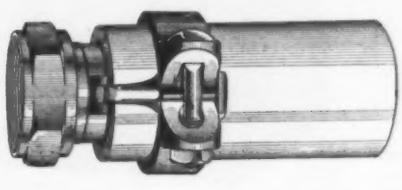


Fig. 1.—Wolf Steam and Air Drilling Coupling, Perspective View.

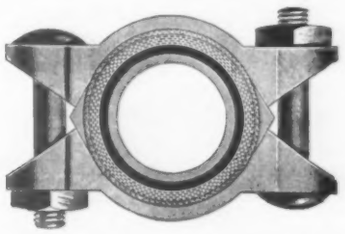


Fig. 2.—Wolf Steam and Air Drill Coupling, Sectional View.

Waverly Washer.

The Waverly washer, shown herewith, is manufactured by Waverly Woodenware Works, St. Joseph, Mo. The tub is made of kiln dried Louisiana cypress, with corrugated staves and bottom. The legs are solid staves, protected by cross braces. The wringer box is supported and braced by heavy iron brackets. The lid is double thickness and tight fitting, having an extra heavy catch fastener which also forms a handle for raising the lid. The hinges and hoops are extra heavy, the latter being fastened to the tub by means of a staple or cleat to prevent them slipping. The fly wheel is fastened to the shaft by means of a hook or key, which can readily be removed and the wheel taken off, making the machine lighter to carry and relieving the hinges and cover of weight when opening. The machine is operated on the rotary reciprocating plan, which may be understood by a study of Fig. 2. The motion is imparted by a cam

Fig. 1.—Waverly Washer, Open, Showing Dasher, Wringer Box, &c.

wheel (2—3), on the crank shaft (7), having follower strips engaged by a follower head (4) attached to the head of the dasher shaft (5). As the fly wheel is turned the cam wheels are revolved, the follower head traveling on the flanges, as indicated by the arrows, thus imparting a rotary and oscillating motion to the dasher inside. In describing the machine it is stated that there are no clutches, springs, trigger or cog wheels which

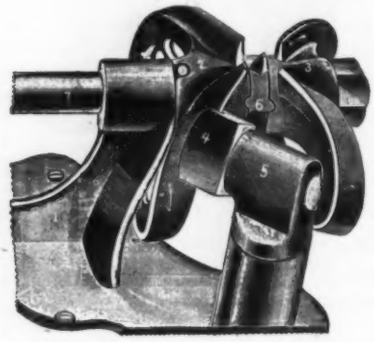


Fig. 2.—Mechanism for Transmission of Power in Waverly Washer.

might break or get out of adjustment, and that it is always in gear and will run forward or backward with equal ease. In appearance the washer is bright and neat, having on the wood work high grade filler and varnish, and on the hoops and main gearing aluminum bronze. The fly wheel is painted with red enamel paint.

Handy Oil Tanks.

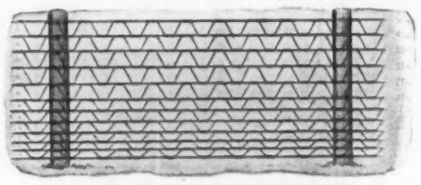
Manufacturers Can Company, 432-436 Mulberry street, Newark, N. J., is putting out tanks of new design for gear and cylinder oil, as shown in the accompanying cut. The tanks have a capacity of 5 gallons each and are said to be easily filled through the extra large opening in the top, which has a dust proof cover. The faucet is large and pours freely, being fitted with an extra check as safeguard against drip. As the faucets extend below the

Handy Oil Tanks.

bottom of the cans the latter cannot be placed upon the floor, but the manufacturer states that they are shipped in a substantial crate which may be utilized as a stand, thus saving the trouble of building a shelf. The tanks are referred to as eliminating much annoyance and inconvenience in oiling machinery. They are handsomely painted and lettered.

Endless Coiled Spring Fence.

The Grand Crossing Tack Company, Grand Crossing, Ill., is now manufacturing the endless coiled spring fence illustrated herewith. As its name implies, each wire is a succession of coiled springs interwoven in such a manner as to give free and independent action to each individual strand or stay, as the strain may be applied or released at any given point. The stay and line wire are firmly secured to each other to prevent slipping, but in such a way as to make a flexible fence and one that can be used on any ground without buckling or bagging. As it is made throughout of one piece of wire it has no ungalvanized ends that are exposed and subject to oxidation. In the manufacture of this fence each wire is securely held at its different points, leaving no chance for the wire to slip in picking up to be drawn forward. Thus each strand is of equal length and the fence will consequently stretch uniformly. The wire used in its manufacture is made from specially prepared open hearth steel made in the company's own furnaces. The mesh is



Endless Coiled Spring Fence.

very close, the lateral wires being 3, 4 and 6 inches apart, with 32 stays to the rod, and so arranged that the stays support the line wires every 3 inches, which prevents their being spread. The standard fence is made in seven styles, ranging from 17 to 51 inches in hight. It is also made in six special styles, ranging in hight from 14 to 48 inches. These are identical with the standard styles, except that they contain one less lateral wire and are especially made for large inclosures. The ranch fence is made in five sizes, ranging from 21 to 45 inches in hight.

Prasser's Magic Cook Chest.

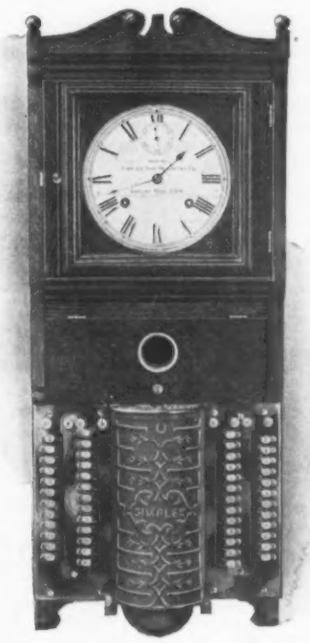
Prasser's Magic Cook Chest Company, Milwaukee, Wis., is placing on the market the cook chest herewith illustrated. This device consists of a frame box of wood or metal, a granite vessel or pot of standard size and a secret nonconductive filling agency. The chest is manufactured in different sizes and with one or more compart-

Prasser's Magic Cook Chest.

ments. Food is brought to a strong boil in the kettle over a gas or coal range and the kettle then transferred to the chest, where it is closed with an air tight cover and left until ready to serve, during which time the heat is maintained and the cooking continues. Experiments are cited of food brought to a boiling point over an open fire in the evening, placed in the cook chest and served hot the following noon. The chest fills an important place in a camping or outing outfit. Claim is made that food cooked in the chest retains its whole strength, taste and nourishment and that a saving in the fuel bill of 75 per cent. as well as great economy of time in watching and stirring foods is effected.

In and Out Model Simplex Time Recorders.

Simplex Time Recorder Company, 33 Sanborn street, Gardner, Mass., is offering in and out model time recorders, the one shown in the accompanying cut being No. 1 for 50 persons. Two other in and out recorders are made, one for 30 and the other for 100 persons. The



In and Out Model Simplex Time Recorders.

features of the recorders are rapidity of registration, and the showing at all times just who is late or absent. To register the employee throws his numbered button lever from "out" to "in" when he arrives, and the same button from "in" to "out" when he leaves. The time sheet used in connection with the recorders is arranged to show the records from 7 to 12 a.m. and from 1 to 6 p.m., by five-minute spaces. The throwing of each button lever makes a perforation in the proper place in the time sheet. Among the points of excellence possessed by the recorders the following are mentioned: That the time sheet is compact and legible and can be checked and computed with unusual rapidity, reducing the time clerk's duties to a minimum, two minutes usually being ample for making up time on a sheet for 50 people; that the time sheet entirely avoids the tedious and sometimes inaccurate work of transferring each original record; that the time sheet has space for an unlimited number of registrations, and with no attention to the clock; that each employee's record for the day is clearly apparent, and is always found in the same horizontal space across the sheet corresponding to his number; that the late comers' records stand out in sharp contrast to the others and are the only ones requiring attention, and that the entire payroll may be carried out on the sheet if desired, as it has the necessary columns for names, rates, totals, &c. The recorders are fitted with the company's new universal gear, making it possible to operate either a 12 or 24 hour shift on the same clock. Where it is not convenient to change the time sheet after a day's work the company can supply a special sheet to be changed during the day, thus avoiding the necessity of some one staying to do this when, for instance, an office employee takes care of the clock and the office hours are shorter than those of the factory. A change of sheet may be made in one minute, and the sheet is locked in the recorder so that it cannot be tampered with by any one.

Kitchen Kumfort Plate Scraper.

The scraper shown in the accompanying cut is designed to clean off all grease from dishes, kettles and pans before washing. As a sink cleaner the scraper is also effective in preventing greasy refuse from reaching the drain. The scraper is made of specially prepared

Kitchen Kumfort Plate Scraper.

rubber, so as not to scratch the finest china. The scrapers are mounted on display cards for the trade, and are intended to retail for 10 cents each. They are manufactured by C. W. Lasher Mfg. Company, 117 Perry street, Davenport, Iowa.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	℔ gal
Linseed, City, raw	42 @43
Linseed, City, Boiled	43 @44
Linseed, State and West'n, raw	39 @40
Linseed, raw Calcutta seed	@65
Lard, Extra Prime, Winter	71 @72
Lard, Extra No. 1	48 @49
Lard, No. 1	38 @40
Cotton-seed, Crude, f.o.b. mills	30½@31
Cotton-seed, Summer Yellow, Prime	36½@37
Cotton-seed, Summer Yellow, off grades	@..
Sperm, Crude	53 @..
Sperm, Natural Spring	@..
Sperm, Bleached Spring	@..
Sperm, Natural Winter	63 @65
Sperm, Bleached Winter	66 @67
Tallow, Prime	51 @53
Whale, Crude	31 @32
Whale, Natural Winter	38 @41
Whale, Bleached Winter	40 @42
Extra Bleached Winter	44 @46
Menhaden, Brown, Strained	26 @29
Menhaden, Light, Strained	27 @30
Menhaden, Bleached, Winter	@..
Menhaden, Ex-Bld., Winter	@..
Menhaden, Southern	@..
Cocoanut, Ceylon ℔ lb	6½@ 6¾
Cocoanut, Cochin ℔ lb	7½@ 7¾
Cod, Domestic, Prime	31 @32
Cod, Newfoundland	35½@37
Red, Elaine	35 @37
Red, Saponified ℔ lb	4¾@ 5
Olive, Italian, bbls	57 @60
Neatsfoot, prime	48 @49
Palm, Lagos ℔ lb	6 @ 6¼

Mineral Oils—

	℔ gal.
Black, 29 gravity, 25@30 cold test	10¼@11½
Black, 29 gravity, 15 cold test	11¼@12¼
Black, Summer	10¼@11¼
Cylinder, light filtered	18 @19
Cylinder, dark filtered	16 @17
Paraffine, 903-907 gravity	13¾@14
Paraffine, 903 gravity	12¾@13
Paraffine, 883 gravity	10¾@10¾
Paraffine, Red	12¾@14

In small lots ½¢ advance.

Miscellaneous—

Barytes:	
White, Foreign ℔ ton	$17.50@19.00
Amer. floated ℔ ton	19.00@....
Off color, No. 2 ℔ ton	13.50@15.00
Chalk, in bulk ℔ ton	3.00@ 3.25
Chalk, in bbls ℔ 100 lb	....@ .35
China Clay, English ℔ ton	12.00@17.00
Cobalt, Oxide ℔ 100 lb	2.50@ 2.60
Whiting, Common ℔ 100 lb	.43@ .48
Whiting, Gilders ℔ 100 lb	.50@ .55
Whiting, Ex. Gilders ℔ 100 lb	.55@ .60

Putty, Commercial—℔ 100 lb

In bladders	$1.70 @1.85
In bbls. or tubs	1.20 @1.40
In 1 lb to 5 lb cans	2.65 @2.95
In 12½ to 50 lb cans	1.50 @1.90

Spirits Turpentine—℔ gal.

In Oil bbls	68 @68½
In machine bbls	68½@69

Glue—

	℔ lb
Cabinet	11 @15
Common Bone	7 @ 9
Extra White	18 @24
Foot Stock, White	11 @14
Foot Stock, Brown	8 @11
German Hide	12 @18
French	10 @40
Irish	13 @16
Low Grade	9 @12
Medium White	14 @17

Gum Shellac—

	℔ lb
Bleached Commercial	39 @41
Bone Dried	49 @51
Button	40 @..
Diamond I	53 @54
Fine Orange	46 @50
A. C. Garnet	39 @40
D. C.	@56
Octagon B	@52
T. N.	42 @43
V. S. O.	53 @54

Colors in Oil—

	℔ lb
Black, Lampblack	12 @14
Blue, Chinese	36 @46
Blue, Prussian	32 @36
Blue, Ultramarine	13 @16
Brown, Vandyke	11 @14
Green, Chrome	12 @16
Green, Paris	@24
Sienna, Raw	12 @15
Sienna, Burnt	12 @15
Umber, Raw	11 @14
Umber, Burnt	11 @14

White Lead, Zinc, &c.—

	℔ lb
Lead, English white, in Oil	9½@ 9¾
Lead, American white, in Oil:	
Lots of 500 lb or over	@ 7¼
Lots less than 500 lb	@ 7¾
In Barrels	@ 6¾
Lead, White, in oil, 25 lb tin pails, add to keg price	@ ⅛
Lead, White, in oil, 12½ lb tin pails, add to keg price	@ 1
Lead, White, in oil, 1 to 5 lb ass'ted tins, add to keg price	@ 1½

Lead, American, Terms: For lots 12 tons and over ¼¢ rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice, for lots of less than 500 lbs. net.

	℔ lb
Lead, White, Dry, in bbls	@ 6¾
Zinc, American, dry	4½@ 5

Zinc, French:

Paris, Red Seal, dry	9½
Paris, Green Seal, dry	10½
Antwerp, Red Seal, dry	8½
Antwerp, Green Seal, dry	9½

Zinc, V. M. French, in Poppy Oil:
Green Seal:

Lots of 1 ton and over	12¾@13¼
Lots of less than 1 ton	12¾@13¾

Zinc, V. M. French, in Poppy Oil:
Red Seal:

Lots of 1 ton and over	11¾@11¾
Lots of less than 1 ton	11¾@12¼

Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or mixed grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors—

	℔ lb
Black, Carbon	5 @10
Black Drop, American	4 @ 6
Black, Drop, English	5 @15
Black, Ivory	16 @20
Lamp, Com	4½@ 6
Blue, Celestial	4 @ 6
Blue, Chinese	29 @32
Blue, Prussian	27 @30
Blue, Ultramarine	4½@15
Brown, Spanish	½@ 1
Carmine, No. 40	$3.30@3.40
Green, Chrome, ordinary	3½@ 6
Green, Chrome, pure	17 @25
Lead, Red, bbls., ½ bbls. and kegs:	
Lots 500 lb or over	@ 7¼
Lots less than 500 lb	@ 7¾
Litharge, American, bbls	@ 7¼
Ocher, American ℔ ton	$8.50@16.00
Ocher, American Golden	2½@ 3½
Ocher, French	1¼@ 2¼
Ocher, Foreign Golden	3 @ 4
Orange Mineral, English	10 @12
Orange Mineral, French	10¾@12
Orange, Mineral, German	8½@10
Orange, Mineral, American	8¼@ 8½
Red, Indian, English	4½@ 8½
Red, Indian, American	3 @ 3¼
Red, Turkey, English	4 @10
Red, Tuscan, English	7 @10
Red, Venetian, Amer. ℔ 100 lb	$0.50@1.25
Red Venetian, English..100 lb	$1.15@1.75
Sienna, Italian, Burnt and Powdered	3 @ 9½
Sienna, Ital., Raw, Powd	3 @ 6½
Sienna, American, Raw	1½@ 2
Sienna, American, Burnt and Powdered	1½@ 2
Talc, French ℔ ton	$15.00@30.00
Talc, American ℔ ton	15.00@25.00
Terra Alba, French ℔ 100 lb	90 @1.00
Terra Alba, English ℔ 100 lb	90 @1.00
Terra Alba, American, ℔ 100 lb, No. 1	.70 @80
Terra Alba, American, ℔ 100 lb, No. 2	.60 @65
Umber, T'key, Bnt. & Pow	2½@ 3½
Umber, Turkey, Raw & Pow	2½@ 3½
Umber, Burnt, Amer	1½@ 2
Umber, Raw, Amer	1½@ 2
Yellow Chrome	12 @14
Vermilion, American Lead	10 @25
Vermilion, Quicksilver, bulk	@65
Vermilion, Quicksilver, bags	@66
Vermilion, English, Import	75 @80
Vermilion, Chinese	$0.50@1.00

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1905, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—
Domestic, ℔ doz. $3.00.....33⅓%
North's 10%
Zimmerman's—See Fasteners, Blind.

Window Stop—
Ives' Patent.....35%
Taplin's Perfection.....35%

Ammunition—
See *Caps, Cartridges, Shells, &c.*

Anvils—American—
Eagle Anvils.....℔ lb 6¾@7 ¢
Hay-Budden, Wrought.....8¢9¼¢
Horseshoe brand, Wrought.....8¢9¼¢
Trenton .....℔ lb 9¢9¼¢

Imported—
Peter Wright & Sons.....℔ lb 10½¢

Anvil, Vise and Drill—
Millers Falls Co., $18.00.....15&10%

Apple Parers—
See *Parers, Apple, &c.*

Aprons, Blacksmiths'—
Livingston Nail Co.....33⅓%

Augers and Bits—
Com. Double Spur.....75@75&5%
Jennings' Patn., reg. finish.... 50&10@60%
Black Lip or Blued.....60&10%
Boring Mach. Augers.....70&10%
Car Bits, 12-in. twist.....50&10%
Ford's Auger and Car Bits.....40&5%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip, R. Jennings' list..25%
No. 30, R. Jennings' list.....40&7½%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits.....15%
Mayhew's Countersink Bits.....45%
Millers Falls.....50&20&7½%
Ohio Tool Co.'s Bailey Auger and Car Bits.....40&10%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in. twist....60&10%
Wright's Jennings' Bits.....50%

Bit Stock Drills—
See *Drills, Twist.*

Expansive Bits—
Clark's small, $18; large, $26....50&10%
Clark's Pattern, No. 1, ℔ doz. $26; No. 2, $18.....65%
Ford's, Clark's Pattern.....60&5%
C. E. Jennings & Co., Steer's Pat..25%
Swan's 60%

Gimlet Bits—
Per gro.
Common Dble. Cut....$3.00@3.25
German Pattern, Nos. 1 to 10, $4.60; 11 to 13, $5.75

Hollow Augers—
Bonney Pat., per doz..$5.50@6.00
Ames .....25&10%
Universal 20%
Wood's Universal.....25%

Ship Augers and Bits—
Ship Augers.....45&5@—%
Ford's .....33⅓@5%
C. E. Jennings & Co.:
L'Hommedieu's 15%
Watrous' .....35&5%
Ohio Tool Co.'s.....40%
Snell's 40%

Awl Hafts—
See *Handles, Mechanics' Tool.*

Awls—
Brad Awls:
Handled .....gro. $2.75@3.00
Unhdled, Shldered..gro.63@66¢
Unhandled, Patent..gro.66@70¢
Peg Awls:
Unhandled, Patent..gro. 31@34¢
Unhdled, Shldered..gro. 65@70¢
Scratch Awls:
Handled, Com...gro. $3.50@4.00
Handled, Socket..gro.$11.50@12.00
Hurwood 40%

Awl and Tool Sets—
See *Sets, Awl and Tool.*

Axes—
Single Bit, base weights:
First Quality.....$4.75@5.00
Second Quality.....$4.25@4.50
Double Bit, base weights:
First Quality.....$7.00@7.50
Second Quality.....$6.50@6.75

Axle Grease—
See *Grease, Axle*

Axles—
Iron or Steel
Concord, Loose Collar...4¼@4¾¢
Concord, Solid Collar...4¾@5¼¢
No. 1 Common, Loose...3¼@3¾¢
No. 1½ Com., New Style3¾@4¼¢
No. 2 Solid Collar.....4@4½¢
Half Patent:
Nos. 7, 8, 11 and 12....75@75&5%
Nos. 13 to 14.....70&10@75&5%
Nos. 15 to 18...75&10@75&10&5%
Nos. 19 to 22...75&10@75&10&5%

Boxes, Axle—
Common and Concord, not turned lb..4½@5¢
Common and Concord, turned. lb., 5½@6¢
Half Patent.....lb. 8½@9¢

Bait—Fishing—
Hendryx:
A Bait.....20%
B Bait.....25%
Competitor Bait.....20&5%

Balances—Sash—
Caldwell new list.....50%
Pullman .....50&10@60%

Spring—
Spring Balances.....50&10@60%
Chatillon's:
Light Spg. Balances.....40&10%
Straight Balances.....40%
Circular Balances.....50%
Large Dial.....30%

Barb Wire—
See *Wire, Barb.*

Bars—Crow—
Steel Crowbars, 10 to 40 lb..... per lb., 3¼¢

Towel
No. 10 Ideal, Nickel Plate..℔ gro. $8.50

Beams, Scale—
Scale Beams.....40&10@50%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters, Carpet—
Holt-Lyon Co.:
No. 12 Wire Coppered ℔ doz. $0.85; Tinned $1.00
No. 11 Wire Coppered ℔ doz. $1.10; Tinned $1.20
No. 10 Wire Galvanized..℔ doz. $1.75
Western W. G. Co.:
No. 1 Electric.....℔ gro. $7.80
No. 2 Buffalo.....℔ gro. $9.00
No. 3 Perfection Dust.....℔ gro. $8.00

Egg—
Holt-Lyon Co.:
Holt, No. A, Japanned....℔ doz. $1.20
Holt, No. 1, Tinned.....℔ doz. $1.50
Holt, No. B, Japanned....℔ doz. $2.00
Holt, No. 2, Tinned.....℔ doz. $2.25
Lyon, No. 2, Japanned....℔ doz. $1.25
Lyon, No. 3, Japanned....℔ doz. $1.50
Taplin Mfg. Co.: ℔ gro.
No. 60 Improved Dover.....$6.00
No. 75 Improved Dover.....$6.50
No. 100 Improved Dover.....$7.00
No. 102 Improved Dover, Tin'd..$8.50
No. 150 Improved Dover, Hotel..$15.00
No. 152 Imp'd Dover, Hotel, T'd.$17.00
No. 200 Imp'd Dover Tumbler....$8.50
No. 202 Imp'd Dover Tumbler, T'd.$9.50
No. 300 Imp'd Dover Mammoth, ℔ doz. $25.00
Western, W. G. Co., Buffalo.....$7.00
Wonder (R. M. Co.)..℔ gro. net, $6.00

Bellows—
Blacksmith, Standard List.. 60&10@70&10%

Hand—
	6	7	8	9	10	
Inch..						Net Prices.
Doz...	$4.75	5.70	6.65	7.60	8.85	

Molders—
	9	10	11	12	14	
Inch..						Net Prices.
Doz...	$8.00	9.00	10.50	12.50	14.50	

Bells—Cow—
Ordinary goods...75&5@75&10&5%
High grade.....70&10@70&10&5%
Jersey .....75&10%
Texas Star.....50%

Door—
Abbe's Gong.....45%
Burton Gong.....50%
Home, R. & E. Mfg. Co.'s.....55&10%
Lever and Pull, Sargent's....60&10&10%
Trip Gong.....50&10@50&10&5%
Yankee Gong.....55%

Hand—
Hand Bells, Polished Brass.60&10%
White Metal.....60%
Nickel Plated.....50&10&60%
Swiss .....60@60&7½%
Cone's Globe Hand Bells.....33⅓@35%
Silver Chime.....33⅓@35%

Miscellaneous—
Farm Bells.....lb. 2¼¢
Steel Alloy Church and School 50&10@60%
American Tube & Stamping Co. Gongs 75%
Table Call Bells.....50@50&10%

Belting—Leather—
Extra Heavy, Short Lap..60&5%
Regular Short Lap....60&10&5%
Standard 10%
Light Standard.....70&5%
Cut Leather Lacing.....50%
Leather Lacing Sides, per sq. ft. 25¢

Rubber—
Agricultural (Low Grade).... 75@75&5%
Common Standard....70@70&10%
Standard .....60&5@60&10%
Extra .....60@60&5%
High Grade.....50&5@50&10%

Bench Stops—
See *Stops, Bench*

Benders and Upsetters, Tire—
Detroit Perfected Tire Bender.....40%
Detroit Stoddard's Lightning Tire Upsetters, No. 1, $4.25; No. 2, $7.25; No. 3, $10.50; No. 4, $16.25; No. 5, $20.50.
Green River Tire Benders and Upsetters 20%

Bicycle Goods—
John S. Leng's Son's 1902 list:
Chain 50%
Parts 50%
Spokes 50%
Tubes 60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks—Tackle—
Common Wooden.....70&10@75%
Harts St. Tackle Blocks.....50@50&5%
B. & L. B. Co.:
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50&10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50&10%; Wire Rope Snatch, 50%.
Lane's Patent Automatic Lock and Junior 50%
Stowell's Novelty. Mal. Iron....50&10%
Stowell's Self Loading.....60%
See also Machines, Hoisting.

Boards, Stove—
Zinc, Crystal, &c.....40%
Paper Embossed.....40&10%

Boards, Wash—
See *Washboards.*

Bobs, Plumb—
Keuffel & Esser Co.....33⅓%

Bolts—
Carriage, Machine, &c.—
Common Carriage (cut thread): ⅝ x 6 and smaller.....75@—%
Larger and Longer..65&5@—%
Phila. Eagle $3.00 list May 24, '99 .....80%
Bolt Ends, list Feb. 14, '95.... 65&10@—%
Machine, ⅝ x 4 and smaller 75@—%
Machine, larger and longer.. 65&5@—%

Door and Shutter—
Cast Iron Barrel, Japanned, Round Brass Knob:

Inch.....	3	4	5	6	8
Per doz..	$0.30	.35	.45	.60	.80

Cast Iron Spring Foot, Jap'd:

Inch.....	6	8	10
Per doz.....	$1.20	1.50	2.25

Cast Iron Chain, Flat, Japanned:

Inch.....	6	8	10
Per doz.....	$1.00	1.40	1.65

Cast Iron Flat Shutter, Jap'd., Brass Knobs:

Inch.....	6	8	10
Per doz.....	$0.75	.95	1.25

Wrt Barrel Japd.....80@80&10%
Wrt "Bronzed....50@50&10%
Wrt. Spring...70&10@70&10&10%
Wrt. Shutter.....50&5@50&10&5%
Wrt. Square Neck.....75@75&10%
Wrt Square 66⅔&10@66⅔&10&10%
Ives' Patent Door.....60%

Plow and Stove—
Plow .....65&10@—%
Stove .....87½&10@—%

Tire—
Norway Iron.....80%
Norway Iron.....80%
American Screw Company:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84....82½%
Bay State, list Dec. 28, '99.....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84...80
Eagle Phila., list Oct. 16, '84....82½
Eclipse, list Dec. 28, '99.....80
Mount Carmel Bolt Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84....82½%
Mount Carmel, list Dec. 28, '99...80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99.....80%
Norway Phila., list Oct., '84.....80%
Upson Nut Co.:
Tire Bolts.....72½%

Borers, Tap—
Borers Tap, Ring, with Handle:

Inch.....	1¼	1½	1¾	2
Per doz...	$4.80	5.60	6.40	8.00
Inch	2¼	2½		
Per doz.....	$8.65	11.50		

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each.....25%

Boxes, Mitre—
C. E. Jennings & Co.....30%
Langdon .....15&10
Perfection 40%
Seavey 33⅓%
Stanley R. & L. Co.:
Nos. 240 to 460.....30%
Nos. 50 and 60.....35%

Braces—
Common Ball, American..$1.25@1.30
Barber's .....50&10&10@60&10
Fray's Genuine Spofford's.....60
Fray's No. 70 to 120, 81 to 123, 207 to 414 60
C. E. Jennings & Co.....50&5
Mayhew's Ratchet.....60
Mayhew's Quick Action Hay Pat...50
Millers Falls Drill Braces.....25&10
P., S. & W. Co., Peck's Pat.60@60&5%
Stanley R. & L. Co.:
Stanley 35%
Victor 45%

Brackets—
Wrought Steel...80&10@80&10&5%
Griffin's Pressed Steel.....80@80&10%
Griffin's Folding Brackets.....70&10%
Stowell's Cast Shelf.....75%
Stowell's Sink.....50%
Western, W. G. Co., Wire.....60&10%

Bright Wire Goods—
See *Wire and Wire Goods.*

Broilers—
Kilbourne Mfg. Co.....75&20%
Western, W. G. Co.....80%
Wire Goods Co.....70@75&10%

Buckets, Galvanized—
Price per dozen.

	Quart.....	12	14
Water, Regular...	1.40	1.70	1.90
Water, Heavy....	3.40	3.70	3.80
Fire, Rd. Bottom..	2.30	2.55	2.95
Well	2.55	2.87	3.15

Bucks, Saw—
Hoosier.....℔ gro. $36.00

Bull Rings—
See *Rings, Bull*

Butts—Brass—
Wrought, list, Sept., '96..15@—%
Cast Brass, Tiebout's.....50%

Cast Iron—
Fast Joint, Broad....40&10@50%
Fast Joint, Narrow....40&10@50%
Loose Joint.....70&10@75%
Loose Pin.....70&10@75%
Mayer's Hinges.....70@70&5
Parliament Butts.....70@70&5

Wrought Steel—
	Discount.	
Reversible and Broad.	75&5%	Extra, not incl.
Light Reversible, Light Narrow	75&10%	
Loose Joint, Narrow, L'ht Inside Blind, etc.....	75%	
Back Flaps, Table, Cheat.	70&10%	

Cages, Bird—
Hendryx, Brass:
3000, 5000, 1100 series.....5%
1200 series.....33⅓%
200, 300, 600 and 900 series.....40&10%
Hendryx Bronze:
700, 800 series.....40&10%
Hendryx Enameled.....40&10%

Calipers—
See *Compasses.*

Calks, Toe and Heel—
Blunt, 1 prong.....per lb. 4¢4½¢
Sharp, 1 prong...per lb., 4½@4¾¢
Burke's Blunt.....4@4½¢
Burke's Sharp.....4½@4¾¢

Gautier, Blunt.....4@4¼¢
Gautier, Sharp.....4½@4¾¢
Perkins', Blunt Toe.....₰ lb 3.65¢
Perkins', Sharp Toe.....₰ lb 4.15¢

Can Openers—
See *Openers, Can.*

Cans, Milk—

	5	8	10 gal.
Illinois Pattern	$1.35	1.85	2.05 each.
New York Pattern	1.50	2.20	2.45 each.
Baltimore Pattern	1.50	2.20	2.45 each.
Dubuque	1.35	1.60	1.75 each.

Cans, Oil—
Buffalo Family Oil Cans:

3	5	10 gal.
$18.00	60.00	129.60 gro., net.

Caps, Percussion—
Eley's E. B......52@55¢
G. D......per M 34@35¢
F. L......per M 40@42¢
G. E......per M 48@50¢
Musket.....per M 62@63¢

Primers—
Berdan Primers, $2 per M...80%
B. L. Caps (Sturtevant Shells) $2 per M.....20%
All other primers per M.$1.52@1.60

Cartridges—
Blank Cartridges:
32 C. F., $5.50.....10&5%
38 C. F., $7.00.....10&5%
22 cal. Rim, $1.50.....10&5%
32 cal. Rim, $2.75.....10&5%
B. B. Caps, Con. Ball, Swgd. $1.90
B. B. Caps, Round Ball....$1.49
Central Fire.....25%
Target and Sporting Rifle..15&5%
Primed Shells and Bullets.15&10%
Rim Fire, Sporting.....50%
Rim Fire, Military.....15&5%

Casters—
Bed.....70@70&10%
Plate.....60&10@60&10&5%
Philadelphia.....75@75&10%
Acme, Ball Bearing.....33⅓%
Boss.....70&10%
Boss Anti-Friction.....70&10%
Gem (Roller Bearing).....80%
Martin's Patent (Phoenix).....45%
Standard Ball Bearing.....45%
Tucker's Patent low list.....30%
Yale (Double Wheel) low list.....50%

Cattle Leaders—
See *Leaders, Cattle.*

Chain, Coil—
American Coil, Straight Link:

3-16	¼	5-16	⅜	7-16	½	9-16
$3.70	5.90	4.95	4.20	4.05	3.95	3.90

⅝ ¾ ⅞ to 1 1⅛ to 1¼ inch.
$3.85 3.70 3.65 3.80
German Coil.....60&10&10@70%

Halter—
Halter Chains.....60&5@60&10%
German Pattern Halter Chains, list July 2½, '97.....60&10&10%
Covert Mfg. Co. Halter.....35&5%
Covert's Saddlery Works Halter.....70%

Cow Ties—
See *Halters and Ties.*

Trace, Wagon, &c.—
Traces, Western Standard: 100 pr.
6½—6-3, Str'ght, with ring.$25.00
6½—6-2, Str'ght, with ring.$26.00
6½—8-2, Str'ght, with ring.$30.00
6½—10-2, Str'ght, with ring.$35.00
NOTE.—Add 2c per pair for Hooks. Twist Traces 2c per pair higher than Straight Link.
Eastern Standard Traces, Wagon Chain, &c.....60&10%

Miscellaneous—
Jack Chain, list July 10, '93:
Iron.....60&10&5@70%
Brass.....60&10@60&10&10%
Safety Chain.....75@75&10%
Gal. Pump Chain.....lb. 4@4½%
Covert Mfg. Co.: Breast, Halter, Heel, Rein, Stallion.....40%
Covert Sad. Works: Breast, Hold Back, Rein.....70%
Oneida Community: Am. Dog Leads and Kennel Chains, 40@40&5%
Niagara Dog Leads and Kennel Chains.....45@60&5%
Wire Goods Co.: Dog Chain.....70&10%
Universal Dbl. Jointed Chain.....50%

Chain and Ribbon, Sash—
Oneida Community: Copper Chain.....60&5%
Steel Chain.....60%
Pullman: Bronze Chain.....60%
Steel Chain.....60&10%
Sash Chain Attachments, per set..8¢
Aluminoy Sash Ribbon, per 100 ft.....$1.25@$3.00
Sash Ribbon Attachments, per set.8¢

Chalk—(From Jobbers.)
Carpenters' Blue.....gro. 38@40¢
Carpenters' Red.....gro. 33@35¢
Carpenters' White....gro. 28@30¢
See also Crayons.

Checks, Door—
Bardsley's.....45%
Eclipse.....60&10%
Pullman, per gro.....$54.00
Ruswin.....40%

Chests, Tool—
American Tool Chest Co.: Boy's Chests, with Tools.....55%
Youths' Chests, with Tools.....40%
Gentlemen's Chests, with Tools..30%
Farmers', Carpenters', etc., Chests, with Tools.....20%
Machinists' and Pipe Fitters' Chests, Empty.....50%
Tool Cabinets.....50%
C. E. Jennings & Co.'s Machinists' Tool Chests.....33⅓&10%

Chisels—
Socket Framing and Firmer
Standard List..75&10@75&10&5%
Buck Bros.....30%
Charles Buck.....30%
C. E. Jennings & Co. Socket Firmer No. 10.....60%
C. E. Jennings & Co. Socket Framing No. 15.....60%
Ohio Tool Co.'s.....70%
Swan's.....75%
L. & I. J. White.....30@30&5%
L. & I. J. White, Tanged.....25&5%

Tanged—
Tanged Firmers.....33 1-3@40%
Buck Bros.....30%
Charles Buck.....30%
C. E. Jennings & Co. Nos. 191. 181..25%

Cold—
lb.
Cold Chisels, good quality..13@15¢
Cold Chisels, fair quality..11@12¢
Cold Chisels, ordinary... 9@10¢

Chucks—
Almond Drill Chucks.....35%
Almond Turret Six-Tool Chuck....35%
Beach Pat., each $8.00.....35&5
Empire.....25%
Blacksmiths'.....25%
Jacobs' Drill Chucks.....35%
Pratt's Positive Drive.....25%
Skinner Patent Chucks: Independent Lathe Chucks....40&10%
Universal, Reversible Jaws.....40
Combination, Reversible Jaws....40
Drill Chucks, New Model.....25%
Drill Chucks, Standard.....40&10%
Drill Chuck, Skinner Pat.....25%
Drill Chucks, Positive Drive.....33⅓%
Planer Chucks.....30
Face Plate Jaws.....40&10%
Standard Tool Co.: Improved Drill Chuck.....45%
Union Mfg. Co.: Combination, Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 17.....40
Combination, No. 21.....35%
Scroll Combination, Nos. 82 and 84.....30
Geared Scroll, Nos. 33, 34 and 35..35%
Independent Iron, Nos. 18 and 318.40
Independent Steel, No. 61.....30
Union Czar Drill, Nos, 000, 101, 103.....35%
Universal 11, 12, 16, 17, 13, 14, 15..40
Universal, No. 42.....35%
Iron Face Plate Jaws, Nos. 28, 30, 48 and 50.....40%
Steel Face Plate Jaws, Nos. 70 and 72.....35%
Westcott Patent Chucks: Lathe Chucks.....50%
Little Giant Auxiliary Drill.....50%
Little Giant Double Grip Drill..50%
Little Giant Drill, Improved.....50%
Oneida Drill.....50%
Scroll Combination Lathe.....50%

Clamps—
Adjustable, Hammers'.....20@20&5%
Cabinet, Sargent's.....50&10%
Carriage Makers', P., S. & W. Co.....40&10@50%
Carriage Makers', Sargent's.....60%
Besly, Parallel.....33⅓&10%
Lineman's, Utica Drop Forge & Tool Co.....40%
Wood Workers, Hammers'.....40&10%
Saw Clamps, see Vises, Saw Filers'.

Cleaners, Drain—
Iwan's Champion, Adjustable.....55%
Iwan's Champion, Stationary.....4?

Sidewalk—
Star Socket, All Steel..₰ doz. $4.05 net
Star Shank, All Steel..₰ doz. $3.24 net
W. & C. Shank, All Steel, ₰ doz., 7½ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—
Foster Bros.....30%
New Haven Edge Tool Co.'s.....45%
Fayette R. Plumb.....30%
L. & I. J. White.....30%

Clippers, Horse and Sheep—
Chicago Flexible Shaft Company:
'98 Chicago Horse, each....$8.75
1902 Chicago Horse, each..$10.75
20th Century Horse, each..$5.00
Lightning Belt Horse, each.$15.00
Chicago Belt Horse, each.$20.00
Stewart's Enclosed Gear Horse, each.....$6.75
Stewart's Patent Sheep Shearing Machine, each.....$12.75
} 20%

Clips, Axle—
Regular Styles, list July 1, '05.80%

Cloth and Netting, Wire
—See *Wire, &c.*

Cocks, Brass—
Hardware list:
Compression, Plain Bibbs, Globe, Kerosene, Racking, &c., Cocks.....75@75&5%

Coffee Mills—
See *Mills, Coffee.*

Collars, Dog—
Nickel Chain, Walter B. Stevens & Son's list.....40%
Leather, Walter B. Stevens & Son's list.....40%

Combs, Curry—
Metal Stamping Co.....40%

Mane and Tail—
Covert's Saddlery Works.....60&10%

Compasses, Dividers, &c.
Ordinary Goods.....75&5@75&10%
Bemis & Call Hdw. & Tool Co.: Dividers.....65%
Calipers, Double.....65%
Calipers, Inside or Outside.....65%
Calipers, Wing.....60%
Compasses.....50%
Wm. Schollhorn Co.: Excelsior Dividers.....60%
Lodi Dividers.....75%

Conductor Pipe,—
L. C. L. to Dealers:

Territory:	*Galvanized Galv. Steel.*	*Charcoal Iron.*	*Copper.*
Eastern:			
70&10	%	*60&7½*	% *50%*
Central:			
70&2½	%	*60*	% *40&10&5%*
Western and S. W.:			
65&10	%	*50&10&2½*	% *47½%*
So. Western			
62½&7½	%	*50&5%*	*40&10%*
Copper.			*1¼&16 oz.*
Eastern.....50&10%			
Central.....50&7½%			
Southern.....5½&5%			
So. Western.....50&2½%			

Terms, 60 days; 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

Gal, each..	2	3	4	6	8
Labrador	$1.20	$1.50	$1.80	$2.10	$2.70
Gal.....	3	4	6	8	
Iceland, ea.	$1.80	$2.10	$2.40	$3.00	
Gal.....	2	3	4	6	8
Galvanized, ea.	$1.85	$2.00	$2.25	$2.90	$3.90

Galvanized, Lined, side handles,

Gal, ...	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$1.15

White Enameled.....25%
Agate Lined.....25%

Coopers' Tools—
See *Tools, Coopers'.*

Coppers' Soldering—
Soldering Coppers, 3 lbs. to pair and heavier, 23@24¢; lighter than 3 lbs. to pair.....25@26¢

Cord— Sash—
Braided, Drab.....lb. 35¢
Braided, White, Com., Nos. 8 to 12, 24¢; No. 7, 24½¢; No. 6, 25½¢.
Cable Laid Italian.....lb., *A, 18¢; B, 16¢*
Common India.....lb. 10@10½¢
Cotton Sash Cord, Tw'ted.17@19¢
Patent Russia.....lb...@11¢
Cable Laid Russia....lb...@15¢
India Hemp, Braided..lb...@18¢
India Hemp, Twisted..lb. 12@13¢
Patent India, Twisted.lb. 12@13¢
Anniston Cordage Co.: ₰ lb, solid Braided, Nos. 8 to 12, $0.24; No. 7, $0.21½; No. 6, $0.25½; ₰ doz., 50 ft., Oriole, $2.00; 50 ft., Columbia, $0.85; 50 ft., Victors, $1.00; 50 ft., 6-Thread, $1.10; 60 ft., 3-Thread, $0.95; 50 ft., Manila, $1.40; 60 ft., Jute, $0.75.
Pearl Braided, cotton, No. 6, ₰ lb. 25½¢; No. 7, 25¢; Nos. 8 to 12, 24½¢
Eddystone Braided, Nos. 8, 9 and 10, 25¢; 7, 25½¢; 6, 26½¢.
Harmony Cable Laid Italian, Nos. 7 to 10.....₰ lb 23 ¢
Peerless: Cable Laid Italian.....16 ¢
Cable Laid Russian.....14 ¢
Cable Laid India.....12 ¢
Braided India.....18 ¢
Pullman: Wire Sash Cord.....18%
Sash Cord Attachments, per doz.10¢
Samson, Nos. 8 to 12: Braided, Drab Cotton.....₰ lb 40 ¢
Braided, Italian Hamp....₰ lb 40 ¢
Braided, Linen.....₰ lb 55 ¢
Braided, White Cotton or Spot....₰ lb 35 ¢
Massachusetts, White.....₰ lb 30 ¢
Massachusetts, Drab.....₰ lb 35 ¢
Phoenix, White, Nos. 8 to 12, 27¢; No. 7, 27½¢; No. 6, 28½¢.
Silver Lake: A, Drab.....45 ¢
A, White.....40 ¢
B, Drab.....40 ¢
B, White.....35 ¢
Italian Hemp.....40 ¢
Linen.....57½ ¢
See also Chain and Ribbon.

Wire, Picture—
List Oct., '00.....
85&10&10@85&10&10&5%
Hendryx Standard Wire Picture Cord, 85&10%

Cradles—
Grain.....40&12½%

Crayons—
*White Round Crayons, gr.*6@6½¢
Cases, 100 gro., $5.00 at factory.
D. M. Steward Mfg. Co.: Genuine, Per gro. Round Pencil, $2.25; Square Pencil, $1.75; Flat Crayon, $2.50; Metal Workers' Crayon, $3.00; Rolling Mill Crayon, $3.00.
Compo. Per gro. Round Pencil, $1.50; Square Pencil, $1.50; Flat Crayon, $1.50; Metal Workers' Crayon, $2.50; Rolling Mill Crayon, $2.50; Railroad Crayon, $4.00; Compo. Crayon, $4.00.
} Case lots, 50&20%
Zelnicker's Lumber: Red, Blue, Green.....₰ gro. $6.50
Black.....₰ gro. $4.00
See also Chalk.
} Case lots, 20%

Crooks, Shepherds'—
Fort Madison, Heavy.....₰ doz. $7.00
Fort Madison, Light.....₰ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—
Victor Garden.....50%

Cutlery, Table—
International Silver Company: No. 12 M'd'm Knives, 1847..₰ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor.....₰ doz. $3.00
Wm. Rogers & Son.....₰ doz. $2.50

Cutters— Glass—
H. H. Mayhew Co.....40%
Red Devil.....50%
Smith & Hemenway Co.....50%
Woodward.....40%

Meat and Food—
American.....30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Enterprise:

Nos.	5	10	12	22	32
Each	$2	$3	$2.75	$4.50	$6

25@25&7½%
No. 202, $1.50.....40&7½%
Dixon's.....₰ doz. 40@50%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Ideal.....40&10@50%
Little Giant.....₰ doz. 40@50%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

N. E. Food Choppers.....25%
New Triumph No. 605, ₰ doz. $24.00...40@50%
Russwin Food, No. 1, $24.00; No. 2, $27.00.....45&10&10%
Woodruff's.....₰ doz. 40@50%

Nos.	100	150
	$15.00	$18.00

Enterprise Beef Shavers.....25@30%

Slaw and Kraut—
Henry Disston & Sons: Slaw, Corn Grater, &c.....40%
Kraut Cutters, 24 x 7, 26 x 8, 30 x 9.....55%
Kraut Cutters, 36 x 12, 40 x 12....40%
J. M. Mast Mfg. Co.: Slaw Cutters, 1 Knife....₰ doz. $3.00
Combined Slaw Cutter and Corn Grater.....₰ doz. $4.00
Tucker & Dorsey Mfg. Co.: Kraut Cutters.....40%
Slaw Cutters, 1 Knife..₰ gr. $18@$20
Slaw Cutters, 2 Knife..₰ gr. $22@$26

Tobacco—
All Iron, Cheap..doz. $4.25@$4.50
Enterprise.....25@30%
National, ₰ doz., No. 1, $21; No. 2, $18.....40%
Sargent's, ₰ doz., No. 2.....60%
Sargent's, Nos. 12 and 21.....60&10%

Washer—
Appleton's, ₰ doz., $16.00....50&10&10%

Diggers, Post Hole, &c.—
Dalbey Post Hole Auger..per doz., $9.00
Iwan's Imp'ved Post Hole Auger.40&5%
Iwan's Vaughan Pattern Post Hole Augers.....₰ doz. $6.25
Iwan's Perfection Post Hole Digger..₰ doz. $8.25
Iwan's Split Handle Post Hole Diggers.....₰ doz. $7.25
Kohler's Universal.....₰ doz. $14.00
Kohler's Little Giant.....₰ doz. $12.00
Kohler's Hercules.....₰ doz. $10.00
Kohler's Invincible.....₰ doz. $9.00
Kohler's Rival.....₰ doz. $8.00
Kohler's Pioneer.....₰ doz. $7.00
Never-Break Post Hole Diggers, ₰ doz., $24.00.....60%
Samson, ₰ doz. $34.00.....25%

Dividers—See *Compasses.*

Drawers, Money—
Tucker's Pat. Alarm Till No. 1, ₰ doz., $18; No. 2, $15; No. 3, $12; No. 4, $18.

Drawing Knives—
See *Knives, Drawing.*

Dressers, Emery Wheel—
Diamond Emery Wheel Dressers....35%
Diamond Wheel Dresser Cutters....35%

Drills and Drill Stocks—
Common Blacksmiths' Drill, each.....$1.50@$1.75
Breast, Millers Falls.....15&10%
Breast, P., S. & W.....40%
Goodell Automatic Drills..40&5@40&10%
Johnson's Automatic Drills, Nos. 2 and 3.....16⅔%
Johnson's Drill Points.....16⅔%
Millers Falls Automatic Drills.33⅓&10%
Ratchet, Curtis & Curtis.....25%
Ratchet, Parker's.....40%
Ratchet, Weston's.....40%
Ratchet, Weston's, Style H Improved.....40%
Ratchet, No. 612.....40%
Ratchet, Whitney's, P., S. & W..50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00.....33⅓%

Twist Drills—
Bit Stock.....60&10&10@70%
Taper and Straight Shank.....60&10@60&10&5%

Drivers, Screw—
Screw D'ver Bits, per doz..45@50¢
Balsey's Screw Holder and Driver, ₰ doz., 2½-in., $6; 4-in., $7.50; 6-in., $9.....50%
Buck Bros.' Screw Driver Bits.....30%
Champion.....50%
Edson.....60%
Fray's Hol. H'dle Sets, No. 3, $12..50%
Gay's Double Action Ratchet.....35%
Goodell's Auto..50&10&10@50&10&10&5%
Hurwood.....40%
Mayhew's Black Handle.....40%
Mayhew's Monarch.....40&10%
Millers Falls, Nos. 20 and 21....25&10%
Millers Falls, Nos. 11, 12, 41, 42..15&10%
New England Specialty Co.....50&10%
Sargent & Co.'s: Nos. 1 and 60.....50&10&10%
Nos. 50, 53 and 55.....60&10%
Nos. 20 and 40.....70&10%
Smith & Hemenway Co.....40&5%
H. D. Smith & Co.'s Perfect H'dle.40%
Stanley R. & L. Co.'s: No. 64, Varn. Handles.....65%
No. 86.....75%
Victor.....55%
Defiance.....70%
Swan's: Nos. 7565 to 7568.....50%
No. 7540.....40&10%

Eave Trough, Galvanized—

Territory.	*L. C. L. Galvanized Galv. Steel.*	*Charcoal Iron.*	*Copper.*
Eastern:			
80&2½%	*70&7½%*		*50%*
Central:			
75&10&7½%	*70%*		*40&10&5%*
Western and S. W.:			
70&20&7½%	*60&15&2½%*		*47½%*
So. Western:			
70&20%	*65&2½%*		*40&10%*

Terms.—2% for cash. Factory shipments generally delivered.
See also Conductor Pipe and Elbows.

Elbows and Shoes—
Factory shipments, all territories:
Galv. Steel and Galv. C. I. Gauge.....60&10%
No. 26.....50%

No. 24.....25%
No. 22.....10%
Copper.....50%

Elbows, Stove Pipe—
Dover, one piece.....40%
Perfect Elbows (R. M. Co.).....40%

Emery, Turkish—
	4 to 46	5 4 to 220	Flour.
Kegs.....	*lb. 5 ¢*	*5½ ¢*	*5½ ¢*
½ Kegs.....	*lb. 5¼ ¢*	*5¾ ¢*	*5¾ ¢*
¼ Kegs.....	*lb. 5½ ¢*	*6 ¢*	*4 ¢*
10-lb. cans, 10 in case....	*6½ ¢*	*7 ¢*	*6 ¢*
10-lb. cans, less than 10.....	*10 ¢*	*10 ¢*	*8 ¢*

Less quantity..10 ¢ 10 ¢ 8 ¢
NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extractors, Lemon Juice
—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's.....50&10%
Walling's.....40&10%

Cord and Weight—
Ives.....40%

Faucets—
Cork Lined.....50@50&10%
Metallic Key, Leather Lined.. 60&10@70%
Red Cedar.....40&10@50%
Petroleum.....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star.....60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..40%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined...50%
John Sommer's Reliable Cork Lined.. 50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined...50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
McKenna, Brass:
Burglar Proof, N. P.....25%
Improved, ⅝ and ¾ inch.....25%
Self Measuring:
Enterprise, ℔ doz. $36.00.....40&10%
Lane's, ℔ doz. $36.00.....40&10%
National Measuring, ℔ doz. $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List revised Nov. 1, 1899.
Best Brands.....70&10@75&10%
Standard Brands.75&10@75&10&10%
Lower Grade....75&10&10@80&10%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97.....33 1-3@40%

Fixtures, Fire Door—
Richards Mfg. Co.:
Universal, No. 103.....$3.75
Special, No. 104.....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—
Net Prices:

Inch.....	*15*	*17*	*19*	*21*
Per doz.....	*$3.25*	*3.75*	*4.25*	*4.75*

P. S. & W. Co.....30&10@40%
Reading Hardware Co.....60%
Sargent's.....70%
Stowell's Giant Grindstone Hanger.. ℔ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy.....50&10&10%
Stowell's Grindstone Fixtures, Light.

Fodder Squeezers—60&10%
See *Compressors.*

Forks—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Iowa Dig-Ey Potato.....60&10%
Victor, Hay.....60&15&2½%
Victor, Manure.....60%
Victor, Header.....60%
Champion, Hay.....60%
Champion, Header.....60%
Champion, Manure.....60&15&2½%
Columbia, Hay.....60&20%
Columbia, Manure.....70%
Columbia, Spading.....70&12½%
Hawkeye Wood Barley.....40%
W. & C. Potato Digger.....60&10%
Acme Hay.....60&20%
Acme Manure, 4 tine.....60&10&5%
Dakota Header.....60&20%
Jackson Steel Barley.....60&20%
Kansas Header.....60%
W. & C. Favorite Wood Barley.....40%
Plated.—See Spoons.

Frames— Saw—
White, S'g't Bar, per doz..75@80¢
Red, S'g't Bar, per doz...$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt......	*1*	*2*	*3*	*4*	*6*
Each.....	*$1.30*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*
Hemp.....$2.75
Cotton.....3.20
Waterproof Sgl. Taped..3.65
Waterproof Dbl. Taped..4.40
Waterproof Tpl. Taped..5.15
} 10&8½%

Gates, Molasses and Oil—
Stebbins' Pattern.....80&10%

Gauges—
Marking, Mortise, &c...50&10@60%
Chapin-Stephens Co.:
Marking, Mortise, &c.50&10@50&10&10%
Scholl's Patent.....50&10@50&10&10%
Door Hangers.....50@50&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....30%
Marking and Mortise.....60%
Wire, Brown & Sharpe's.....25%
Wire, Morse's.....25%
Wire, P., S. & W. Co.....33⅓%

Gimlets— Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.30
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glass, American Window
See *Trade Report.*

Glasses, Level—
Chapin-Stephens Co.....60@60&10&10%

Glue, Liquid Fish—
Bottles or Cans, with Brush.. 25&10@50%
International Glue Co. (Martin's)..40%

Grease, Axle—
Common Grade....*gro.* $4.50@6.00
Dixon's Everlasting..10-lb pails, ea. 85¢
Dixon's Everlasting, in boxes, ℔ doz. 1 lb, $1.20; 2 lb, $2.00
Helmet Hard Oil.....25%

Griddles, Soapstone—
Pike Mfg. Co.....33⅓@33⅓&10%

Grindstones—
Bicycle Emery Grinder.....$6.50
Bicycle Grindstones, each.....$2.50@3.00
Pike Mfg. Co.:
Improved Family Grindstones, per inch, ℔ doz.....$2.00 } 33⅓%
Pike Mower and Tool Grinder, each.....$6.00 }

Grips, Nipple—
Perfect Nipple Grips.....40&10&2%

Halters and Ties—
Cow Ties.....60&10@60&10&5%
Covert Mfg. Co.:
Web.....45%
Jute Rope.....45%
Sisal Rope.....33⅓%
Cotton Rope.....45%
Hemp Rope.....45%
Covert's Saddlery Works:
Web and Leather Halters.....70%
Jute and Manila Rope Halters....70%
Sisal Rope Halters.....60&20%
Jute, Manila and Cotton Rope Ties.....70%
Sisal Rope Ties.....60&10%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters..45@50&5%
Niagara Cow Ties....45&5@50&10&5%
E. T. Rugg & Co.:
Leather Halters.....50%
Web Halters and Webbing.....60%
Jute and Sisal Rope Halters.....60%
Jute and Sisal Horse and Cattle Ties.....60%
Cotton Horse Ties.....60%
Livery Ties, Braided.....60%

Hammers—
Handled Hammers—
Heller's Machinists'...40&10@40&10&10%
Heller's Farriers.....40&10@40&10&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25 $1.50, $1.75.....50%
Peck, Stow & Wilcox, Steel.....50%
Fayette R. Plumb:
Plumb, A. E. Nail.....33⅓&7½@33⅓&10&7½%
Engineers' and B. S. Hand.....50&7½&5@50&10&7½&5%
Machinists' Hammers.50&5@50&10&5%
Riveting and Tinners'.....40&2½@40&10&2½%
Sargent's C. S. New List.....40%

Heavy Hammers and Sledges—
Under 3 lb., per lb., 50¢...80&10%
3 to 5 lb., per lb., 40¢...80&10%
Over 5 lb., per lb., 30¢..80&10&10%
Wilkinson's Smiths'...lb. 9½@10¢

Handles—
Agricultural Tool Handles
Axe, Pick, &c.....60&10@60&10&5%
Hoe, Rake, &c......45@50%
Fork, Shovel, Spade, &c.:
Long Handles.....45@50%
D Handles.....50@50&5%

Cross-Cut Saw Handles—
Atkins'.....40%
Champion.....45@45&10%
Disston's.....50%

Mechanics' Tool Handles—
Auger, assorted...*gro.* $2.50@$3.00
Brad Awl.....*gro.* $1.65@$1.75
Chisel Handles:
Apple Tanged Firmer, gro. assorted.....$2.40@$2.65
Hickory Tanged Firmer, gro. assorted.....$2.15@$2.40
Apple Socket Firmer, gro. assorted.....$1.75@$1.95
Hickory Socket Firmer, gro. assorted.....$1.45@$1.60
Hickory Socket Framing, gro. assorted.....$1.60@$1.75
File, assorted.....*gro.* $1.30@$1.40
Hammer, Hatchet, &c. 60&10@60&10&5%
Hand Saw, Varnished, doz. 80&85¢; *Not Varnished*...85@75¢
Plane Handles:
Jack, doz. 30¢; Jack, Bolted.75¢
Fore, doz. 45¢; Fore, Bolted.90¢
Chapin-Stephens Co.:
Carving Tool.....40@40&10%
Chisel.....65@65&10%
File and Awl.....65@65&10%
Saw and Plane.....40@40&10%
Screw Driver.....40@40&10%
Millers Falls Adj. and Ratchet Auger Handles.....15&10%
Nicholson Simplicity File Handle.... ℔ gro. $7.65@$1.50

Hangers—
NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c.
Allith Mfg. Co.:
Reliable, No. 1.....per doz. $8.00
Reliable, No. 2.....per doz. $9.00
Chicago Spring Butt Co.:
Friction.....25%
Oscillating.....25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator.....30%
Railroad.....50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00.....70%
Roller Bearing, No. 11, $15.00.70%
Roller Bearing, Ex. Hy., No. 22, $18.00.....70%
Hinged Hangers, $16.00....60&10%
Lane Bros. Co.:
Parlor, Ball Bearing.....$4.00
Parlor, Standard.....$3.15
Parlor, No. 105.....$2.85
Parlor, New Model.....$2.80
Parlor, New Champion.....$2.25
Barn Door, Standard.....60&5%
Hinged.....net $6.40
Covered.....60&2%
Special.....70&5%
Lawrence Bros.:
Advance.....60&10%
Cleveland.....75%
Clipper, No. 75.....60%
Crown.....60&10%
Easy Parlor Door, Dbl. Sets, $2.50; Single Sets, $1.25.
Giant.....60&5%
Hummer.....70&5%
New York.....60&10%
Peerless.....75%
Sterling.....60&10%
McKinney Mfg. Co.:
No. 1, Special, $15.....60&10%
No. 2, Standard, $18.....60&10%
Hinged Hangers, $16.....50%
Meyers' Stayon Hangers.....60&5%
Richards Mfg. Co.:
Hangers, Nos. 47, 48, 147, 247, 60&5%
Pioneer Wood Track No. 3..$2.00
Ball B'r'g St'l Track No. 10.50&10%
Roller B'r'g St'l Track No. 12.$2.15
Roller B'r'g St'l Track No. 13.$2.30
Roller B'r'g, Nos. 39, 41, 43, 70&10%
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&10%
Trolley B. D. No. 17.....$1.25
Trolley F. D. No. 120.....$2.10
Trolley F. D. No. 123.....$2.25
Trolley F. D. No. 150.....$2.55
Safety Underwriters F. D. No. 101.....50%
Tandem No. 44..2½ and 3 60&10%
Palace, Adjustable Track No. 132.....50&10%
Royal, Adjustable Track No. 122.....50&10%
Ives' Wood Track No. 1.....$2.00
Trolley B. D. No. 20.....50&10%
Trolley B. D. No. 24.....$1.30
Trolley B. D. No. 27.....$1.40
Trolley B. D. No. 28.....$1.60
Roller Bearings, Nos. 37, 38, 39, 41, 43; 44, Sizes 1 and 2..70&10%
Anti-friction, No. 42.....60&10%
Anti-friction, No. 44, Sizes 2½ and 3.....60&10%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135.....40%
Safety Door Hanger Co.:
Storm King Safety.....60%
U. S. Standard Hinge.....60%
Stowell Mfg. & Foundry Co.:
Acme Parlor Ball Bearing....40%
Ajax Hinge Door.....60%
Apex Parlor Door.....50&10&5%
Atlas.....60%
Baggage Car Door.....50%
Climax Anti-Friction.....50&10%
Elevator.....40%
Express.....50%
Freight Car Door.....60%
Interstate.....60&10%
Lundy Parlor Door.....50&10%
Magic.....60%
Matchless.....50&10%
Nansen.....70&5%
Parlor Door.....50&10%
Railroad.....50&10%
Rex Hinge Door.....60%
Street Car Door.....50%
Steel, Nos. 300, 404, 500....50&10%
Underwriters' Fire Door.....40%
Wild West Warehouse Door..50%
Zenith for Wood Track....50&10%
A. L. Sweet Iron Works:
Check Back.....70%
Climax Anti-Friction.....50&10%
Eagle.....70%
Hylo Hinge.....60%
New Perfection.....60%
Pilot.....60%
Pilot Hinge.....60%
Rider Wooster.....65%
Western Pattern.....70%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing.50&15&10&5%

Extra 5@10% often given.

Hangers— Garment—
Pullman Trouser, ℔ gro., 1 pair Flat Aluminoy, $9.00; 1 pair Round Nickeled, $9.00; 4 pair Round Nickeled, $27.00; 1 pair Flat Gun Metal, $12.00; 1 pair Flat Black Enameled, $7.50; 1 pair Wood Clamp, $13.00; Skirt Hangers, Folding, per gro., $21.00; Coat Hangers, Folding, per gro., $8.00; Garment Hanger Rods, Round Nickeled, per gro., $15.00; Garment Hanger Loops, Round Nickeled, per gro.....$15.00
Victor Folding.....℔ gro. $9.00
Western, W. G. Co.....70&10%

Gate—
Myers' Patent Gate Hangers, ℔ doz. net.....$4.50

Joist and Timber—
Lane Bros. Co.....30%

Hasps—
Griffin's Security Hasp.....50%
McKinney's Perfect Hasp, ℔ doz..50%

Hatchets—
Regular list, first quality....50%
Second quality $1.00 per doz. less than first quality.

Heaters, Carriage—
Clark, No. 5, $1.75; No. 5B, $2.00; No. 3, $2.25; No. 3D, $2.75; No. 7D, $3.00; No. 3E, $3.25; No. 1, $3.50.....15%
Clark Coal, ℔ doz. $0.75.....10%

Hinges—
Blind and Shutter Hinges—
Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No......	*1*	*3*	*5*
Doz. pair.....	*$0.75*	*1.35*	*2.70*

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No......	*1*	*1½*	*2*	*2½*
Doz. pair.....	*$0.70*	*.65*	*.60*	*.55*

Mortise Reversible Shutter (Buffalo, &c.):

No......	*1*	*1½*	*2*
Doz. pair.....	*$0.70*	*.65*	*.60*

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.:
Hale & Benjamin Automatic Blind Hinges.....20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%
Reading's Gravity.....60%
Sargent's, Nos. 1, 3, 11 and 13..75&10%
Stanley's Steel Gravity Blind Hinges, ℔ doz. sets, without screws, $0.90; with screws, $1.20.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&10&5%
Acme, Lull & Porter.....75&10%
Queen City Reversible.....75&10%
Shepard's Noiseless, Nos. 60, 65, 55.....75&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
1868, Old Pat'n, Nos. 1, 3 & 5.... 75&10&5%
Tip Pat'n, Nos. 1, 3 & 5.....10&5%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
Shepard's Double Locking, Nos. 20 & 25.....70%
Champion Gravity Locking, No. 75.75%
Steamboat Gravity Locking, No. 10.75%
Pioneer, Nos. 060, 45 & 5½.....75%
Empire, Nos. 101 & 103.....70%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No......	*1*	*2*	*3*
Hinges with L't'chs.	*$2.00*	*2.70*	*5.00*
Hinges only.....	*1.40*	*2.05*	*3.80*
Latches only.....	*.70*	*.70*	*.35*

New England:
With Latch.....*doz.* ...@$2.00
Without Latch...*doz.* ...@$1.60
Reversible Self-Closing:
With Latch.....*doz.* ...@$1.75
Without Latch...*doz.* ...@$1.35
Western:
With Latch.....*doz.* $1.75
Without Latch.....*doz.* $1.15
Wrightsville Hardware Co.:
Shepard's or Clark's, doz. sets.

Nos.	1	2	3
Hinges with Latches..	$2.00	2.70	5.00
Hinges only.....	1.40	2.05	3.80
Latches only.....	.70	.70	1.35

Pivot Hinges—
Bommer Bros. Pivot.....40%
Lawson Mfg. Co. Matchless.....45%

Spring Hinges—
Holdback, Cast Iron...$6.50@$7.00
Non-Holdback, Cast Iron$6.25@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....45%
Bardsley's Patent Checking..15%
Bommer Bros.:
Bommer Ball Bearing Floor Hinges.....40%
Bommer Spring Hinges.....40%
No. 999 Wrot. Steel Hold Back, ℔ gr. $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor Hinge.....50%
Garden City Engine House....25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American.....30%
Columbia, No. 14.....℔ gr. $9.00
Columbia, No. 18.....℔ gr. $25.00
Columbia, Adjustable, No. 7, ℔ gr. $12.00
Gem, new list.....30%
Clover Leaf.....℔ gr. $12.00
Oxford, new list.....30%
Lawson Mfg. Co., Matchless....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges.....40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....℔ gr. $9.00
Ball Bearing Floor Hinge....50%
Ohio Detachable Screen Door Hinge.....℔ gr. $12.00
Superior Spring Hinge Co.:
Superior Floor Hinges.....33⅓%
The Stover Mfg. Co.:
Ideal, No. 16, Detachable, ℔ gr. $12.50
Ideal, No. 4.....℔ gr. $9.00
New Idea No. 1.....℔ gr. $9.00
New Idea, Double Acting....45%
New Idea Floor.....45%
Van Wagoner:
Ball Bearing.....25%
No. 777 Sh't Steel Holdb'k, ℔ gro. pr. $9

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list December 20, 1904:

Light Strap Hinges...65%
Heavy Strap Hinges..75%
Light T Hinges.....60%
Heavy T Hinges.....55%
Extra H'y T Hinges..70%
Hinge Hasps.....45%
Cor. Heavy Strap....75%
Cor. Ex. Heavy T..70&10%
} *Extra, 10&5@ 10&10%*

Screw Hook and Strap. { *6 to 12 in..lb. 3¾¢* / *1¼ to 20 in..lb. 3½¢* / *22 to 36 in..lb. 3¼¢*

Screw Hook and Eye:
¾ to 1 inch.....lb. 6½¢
⅝-inch.....lb. 7½¢
½-inch.....lb. 8½¢

Hitchers, Stall—

Covert Mfg. Co., Stall Hitchers..30&2%

Hods— Coal—

	Per doz.			
Inch	*15*	*16*	*17*	*18*
Galv. Open	*$2.50*	*2.75*	*3.00*	*3.25*
Jap. Open	*$1.90*	*2.10*	*2.25*	*2.55*
Galv. Funnel	*$3.00*	*3.30*	*3.60*	*3.90*
Jap. Funnel	*$2.45*	*2.65*	*2.85*	*3.30*

Masons' Etc.—

Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $0.95
Steel Mortar, No. 158.....each $1.25

Hoes— Eye—

Scovil and Ovol Pattern.....
60&10@60&10&10%
Grub, list Feb. 23, 1899.....
70&10@75&10%
D. & H. Scovil.....33⅓%

Handled—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Cronk's Weeding No. 1, $2.00; No. 2, $2.25
Ft. Madison Cotton Hoe....70&10&10%
Ft. Madison Crescent Cultivator Hoe, ℔ doz.....70&10%
Ft. Madison Mattock Hoes:
Regular Weight.....℔ doz. 66⅔%
Junior Size.....℔ doz. $4.00
Ft. Madison Sprouting Hoe..℔ doz. 50%
Ft. Madison Dixie Tobacco Hoe.....
75&10&7½%
Kretsinger's Cut Easy.....70&10%
Warren Hoe.....45&10%
W. & C. Ivanhoe.....75&2%
B. B. 6 in., Cultivator Hoe.....$3.15
B. B., 6½ in.....$3.35
Acme Wedding.....℔ doz., net, $4.35
W. & C. L'tning Shuffle Hoe,℔doz.$4.85

Hoisting Apparatus—

See *Machines, Hoisting.*

Holders— Bit—

Angular, ℔ doz. $24.00.....45&10%

Door—

Bardsley's.....45%
Empire.....50%
Pullman.....50%
Superior.....33⅓%

File and Tool—

Nicholson File Holders and File Handles.....33⅓&40%

Fruit Jar—

Triumph Fruit Jar Holder, ℔ gross, $10.80; ℔ doz.....$1.25

Hones—Razor—

Pike Mfg. Co., Belgian, German and Swaty.....50%

Hooks—Cast Iron—

Bird Cage, Reading.....40%
Bird Cage, Sargent's List.....60&10%
Ceiling, Sargent's List, Nos. 29, 32, 33, 129, 132, 133 and 135.....50&10&10%
Clothes Line, Reading List.....40%
Clothes Line, Sargent's List.50&20&10%
Coat and Hat, Sargent's List...50&10%
Clothes Line, Stowell's.....70%
Coat and Hat, Reading.....45&20%
Coat and Hat, Stowell's.....70%
Coat and Hat, Wrightsville.....65%
Harness, Reading List.....40%
Harness, Stowell's.....60%
School House, Stowell's.....70%

Wire—

Belt.....80&10@..%
Wire C. & H. Hooks:.....
75&10@75&10&10%
Columbian Hdw Co., Gem.....70&10%
Parker Wire Goods Co., King..70&10%
Van Wagoner, Coat and Hat.....70%
Western W. G. Co. Molding.....75%
Wire Goods Co.:
Acme.....60&10%
Chief.....70%
Crown.....75%
Czar.....65%
V Brace.....75%
Czar Harness.....60&10%

Wrought Iron—

Box, 6 in., per doz., $1.00; 8 in., $1.25; 10 in., $3.50.
Cotton.....doz. $1.05@$1.25
Wrought Staples, Hooks, &c.—
See Wrought Goods.

Miscellaneous—

Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz. $1.75; Medium, $5.35; Heavy, $6.25
Grass, best, all sizes, per doz.$1.60
Grass, common grades, all sizes, per doz.....$1.30
Whiffletree.....lb. 5¾@6¢
Hooks and Eyes:
Brass.....60&5@60&10&5%
Malleable Iron.....70@70&10%
Covert Mfg. Co. Gate and Scuttle Hooks.....40%
Covert Saddlery Works' Self Locking Gate and Door Hook.....60%
Ft. Madison Cut-Easy Corn Hooks, ℔ doz. $3.25 net
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—

See *Nails, Horse.*

Horseshoes—

See *Shoes, Horses.*

Hose, Rubber—

Garden Hose, ¾-inch:
Competition.....ft. 5 @ 6 ¢
3-ply Guaranteed..ft. 8 @ 9 ¢
4-ply Guaranteed..ft. 10 @11 ¢
Cotton Garden, ¾-in., coupled:
Low Grade.....ft. 8 @ 9 ¢
Fair Quality.....ft. 10 @11 ¢

Irons— Sad—

From 4 to 10.....lb. 3 @3½¢
B. B. Sad Irons.....lb. 3¼@3½¢
Mrs. Potts', cents per set:

Nos.	*50*	*55*	*60*	*65*
Jap'd Tops	*68*	*65*	*78*	*75*
Tin'd Tops	*71*	*68*	*81*	*78*

New England Pressing..lb. 3¾@4¢

Pinking—

Pinking Irons.....doz. 60¢

Irons, Soldering

See *Copp.ers.*

Jacks, Wagon—

Covert Mfg. Co.:
Auto Screw.....30&2%
Steel.....45%
Covert's Saddlery Works:
Daisy.....60&10%
Victor.....60%
Lockport.....50%
Lane's Steel.....30&10&2%
Richards' Tiger Steel, No. 130...50&10%
Smith & Hemenway Co.'s.....25%

Kettles—

Brass, Spun, Plain.....20@25%
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c.....30%
Wilkinson Shear & Cutlery Co.....60%

Corn—

Wilkinson Wilcut Brand Knives and Hooks.....60%
Withington Acme, ℔ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—

Standard List.....75&5@75&10%
C. E. Jennings & Co., Nos. 45, 46..60%
Jennings & Griffin, Nos. 41, 42.....60%
Ohio Tool Co.'s.....70%
Swan's.....75%
Watrous.....16⅔%
L. & I. J. White.....20&5@25%

Hay and Straw—

Serrated Edge, per doz.$5.75@6.00
Iwan's Sickle Edge.....℔ doz. $9.50
Iwan's Serrated.....℔ doz. $10.00

Mincing—

Buffalo.....℔ gro. $13.00

Miscellaneous—

Farriers'.....doz. $3.00@3.25
Wostenholm's.....℔ doz. $3.00@3.25

Knobs—

Base, 2½-inch, Birch, or Maple, Rubber Tip.....gro.$1.25@$1.50
Carriage, Jap., all sizes.....
gro. 40@45¢
Door, Mineral.....doz. 65@70¢
Door, Por. Jap'd.....doz. 70@75¢
Door, Por. Nickel..doz. $2.05@2.15
Bardsley's Wood Door, Shutters, &c.15%
Picture, Sargent's.....60&10&10%

Lacing, Leather—

See *Belting, Leather—*

Ladders, Store, &c.—

Lane's Store.....25%
Myers' Noiseless Store Ladders....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 113.....50%
Trolley, No. 109.....50%

Ladles, Melting—

L. & G. Mfg. Co. (low list).....25%
P. S. & W.....50%
Reading.....60%
Sargent's.....50&10%

Lanterns— Tubular—

Regular Tubular, No. 0.....
doz.$4.25@4.50
Lift Tubular, No. 0.....
doz.$4.75@5.00
Hinge Tubular, No. 0.....
doz.$4.75@5.00
Other Styles.....40@40&5%

Bull's Eye Police—

No. 1, 2¾-inch.....$2.75@3.00
No. 2, 3-inch.....$3.00@3.25

Lasts and Stands, Shoe—

Stowell's Atlas, Malleable Iron.....50%
Stowell's Badger, Cast Iron.....50%

Latches— Thumb—

Roggin's Latches, with screw..
doz. 35@40¢

Door—

Cronk & Carrier Mfg. Co., No. 101, ℔ doz. $2.00
Cronk & Carrier Mfg. Co., Latch, Hasp and Staples.....50%
Richards' Bull Dog, Heavy, No. 125.....50&5%
Richards' Trump, No. 127.....$1.50

Leaders, Cattle—

Small.....doz. 50¢; large, 60¢
Covert Mfg. Co.:
Cotton, Hemp and Jute, 45%; Sisal, 33⅓%.

Lifters, Transom—

R. & E.....33⅓%

Lines—

Wire Clothes, Nos.	*18*	*19*	*20*
100 feet	*$2.25*	*2.00*	*1.75*
75 feet	*$1.75*	*1.35*	*1.10*

Anniston Waterproof Clothes, 50 ft. ℔ gro., $25.00; Gilt Edge, $23.00; Air Line, $23.00; Acme, $18.00; Alabama, $17.00; Empire, $16.00; Advance, $14.00; Eclipse, $13.50; Chicago, $11.50; Standard, $10.50; Columbia, $9.50; Allston, $13.50; Calhoun, $12.00.
Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....℔ gr. 20%
Masons' Lines, Shade Cord, &c.:
White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50.....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....20%

Locks— Cabinet—

Cabinet Locks...33⅓@33⅓&7½%

Door Locks, Latches, &c.—

NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....40%
R. & E. Mfg. Co.....40%
Sargent & Co.....40&10%
Stowell's Steel Door Latches.....50%

Elevator—

Stowell's.....80%

Padlocks—

Wrought Iron....75&10&5@80&5%
Net prices are general.
R. & E. Mfg. Co. Wrought Steel and Brass.....75&10%

Sash, &c.—

Ives' Patent:
Bronze and Brass.....62½%
Crescent.....50&10%
Iron.....62½%
Window Ventilating.....60%
Robison Patent Ventilating Sash Lock.....40%
Wrought Bronze and Brass.....55%
Wrought Steel.....55%
Pullman Patent Ventilating Lock..25%
Reading.....40%

Machines—Boring—

Com. Upr't, without Augers.$2.00
Com. Ang'l'r, without Augers.$2.25
Swan's Improved.....40&10%
Angular.
Jennings', Nos. 1 and 4.....35&5%
Millers' Falls.....5.75
Snell's, Rice's Pat. 2.50 2.75

Corking—

Reisinger Invincible Hand Power.....
℔ doz. $48.00

Fence—

Williams' Fence Machines....each, $5.50

Hoisting—

Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.....20%

Ice Cutting—

Chandler's.....12½%

Washing—

Boss Washing Machine Co.: Per doz.
Boss No. 1.....$57.00
Boss Rotary.....$54.00
Champion Rotary Banner No. 1...$54.00
Standard Champion No. 1.....$48.00
Standard Perfection.....$26.00
Cintl Square Western.....$30.00
Uneeda American, Round.....$30.00

Mallets—

Hickory.....45&5@50%
Lignumvitæ.....45&5@50%
Tinners' Hickory and Apple-wood.....doz. 45&5@50%

Mangers, Stable—

Swett Iron Works.....50%

Mashers, Vegetable—

Western, W. G. Co., Potato....60&10%

Mats, Door—

Elastic Steel (W. G. Co.), new list.. 50&10%
Keystone Wire Matting Co.:
Keystone.....50%
Ideal.....50%

Mattocks—

See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—

Enterprise Mfg. Co.....25@30%
National list Jan. 1, 1902.....30%
Parker's Columbia & Victoria.50&10@60%
Parker's Box and Side.....50&10@60%
Swift, Lane Bros. Co.....30%

Mowers, Lawn—

NOTE.—Net prices are generally quoted
Cheapest.....all sizes, $1.85@2.00
Cheap.....all sizes, $2.00@2.50
Better Grade..all sizes, $2.50@4.50

	12	*14*	*16*	*18-in.*
High Grade	*$4.50*	*4.75*	*5.00*	*5.25*

Continental.....60&5%
Great American.....70%
Great American Ball B'r'g, new list.70%
Quaker City.....70%
Pennsylvania.....60&5%
Pennsylvania, Jr., Ball Bearing....60%
Pennsylvania Golf.....50%
Pennsylvania Horse.....33⅓&5%
Pennsylvania Pony.....40&5%
Granite State:
Style A, Low Wheel....70&10&10&5%
Style B, Low Wheel.....70&10&5%
Style C, High Wheel.....70&10%
Style D, High Wheel.....70%
Philadelphia:
Styles M., S., C., K., T.....70&5%
Style A, all Steel.....60&5%
Style E, High Wheel.....70&10&5%
Drexel and Gold Coin, special list.50%

Nails—

Wire Nails and Brads, Miscellaneous.....85¢10@85¢10&5%
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers' &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	...40&5%
Champlain	28	26	25	24	23	.....50%
Coleman	13	12	12	11	11	.....net
New Haven	23	21	20	19	18	...40&5%
Putnam	23	21	20	19	18	....33⅓%
New Putnam	19	18	17	16	16	..10&10%

Western.....℔ lb 8½¢
Jobbers' Special Brands.....
per lb.9@10¢

Picture—

	1½	*2*	*2½*	*3*	*3½ in.*
Brass H'd.	*.55*	*.55*	*.60*	*.70*	*.. gro*
Por. Head..	*1.10*	*1.10*	*1.10*		*.. gro*

Nippers—

See *Pliers and Nippers.*

Nuts—

Cold Punched: *Off list.*
Mfrs. or U. S. Standard.
Square, Blank or Tapped..$4.90
Hexagon, Blank or Tapped.$5.30
Square, Blank, C. & T.....$5.20
Hexagon, Blank, C. & T...$5.90
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square, Blank.....$5.30
Hexagon, Blank.....$5.20
Square, Tapped.....$5.20
Hexagon, Tapped.....$5.70

Oakum—

Best.....lb. 6¼@6½¢
U. S. Navy.....lb. 5¾@6¢
Navy.....lb. 4½@5¢
Plumbers' Spun Oakum...2½@3¢
In carload lots ⅛¢ lb. off, f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—

Brass and Copper.....50&10%
Tin or Steel.....70&10&5%
Zinc.....70&10&5%
Chase or Paragon:
Brass and Copper.....50&10%
Tin or Steel.....65&10%
Zinc.....65&10%
Malleable, Hammers' Imp'ed, Nos. 11, 12 and 13.....20%
Malleable, Hammers' Old Pattern, Nos. 1, 2 and 3.....50%
American Tube & Stamping Co.:
Spring Bottom Cans.....70&10&10%
Railroad Oilers, &c.....60&10&10%

Openers— Can— *Per doz.*

Sprague, Iron Handle....30@35¢
Sprague, Wood Handle...35@40¢
Sardine Scissors.....$1.75@$3.00
National.....50&10%
Stowell's Sprague.....℔ doz. 35@45¢
Vim Tin Shear and Can Opener, ℔ doz., 75c.; per gro., $7.50

Egg—

Nickel Plate.....℔ doz., $2.00
Silver Plate.....℔ doz., $4.00

Packing—

Asbestos Packing, Wick and Rope.....17@22¢

Rubber—

(Fair quality goods.)
Sheet, C. I.....11@12¢
Sheet, C. O. S.....11@12¢
Sheet, C. B. S.....12@13¢
Sheet, Pure Gum.....40@45¢
Sheet, Red.....40@50¢
Jenkins' '96, ℔ lb 80¢.....25@25&5%

Miscellaneous—

American Packing...lb. 7@10 ¢
Cotton Packing.....lb. 16@25 ¢
Italian Packing.....lb. 9@12½¢
Jute.....lb. 4@ 4½¢
Russia Packing.....lb. 8@11 ¢

Pails, Creamery—

R. M. Co., with gauges—No. 1, $6.25; No. 2, $6.50 ℔ doz.

Pails, Water, Well, &c.—

See *Buckets.*

Pans— Dripping—

Standard List.....65&10%

Fry—

Common Lipped:

Nos.	*1*	*2*	*3*	*4*	*5*
Per doz.	*$0.75*	*0.80*	*0.90*	*1.10*	*1.30*

Refrigerator, Galva.—

Inch	*12*	*14*	*16*	*18*
Per doz	*$1.95*	*2.25*	*2.80*	*3.15*

Roasting and Baking—

Regal, R. M. Co., ℔ doz., Nos. 5, $1.50; 10, $5.25; 20, $5.75; 30, $6.25.
Savory, ℔ doz., net, Nos. 200, $9.00; 400, $15.00.
Simplex, ℔ gro.:

No.	40	50	60	140	150	160
	$30.00	35.00	42.00	34.00	39.00	46.00

Paper—Building Paper

Asbestos:	*lb.*	
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft.6¢		*1-32*
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lbs., per 100 sq. ft.....8¢		*3-32*
Mill Board, Sheet, 40 x 40 in., 1-32 to ⅛ in.....10¢		

Per roll
Rosin Sized Sheathing: 500 sq. ft. Light weight, 25 lbs. to roll
33@40¢
Medium weight, 30 lbs. to roll,
40@45¢
Heavy weight, 40 lbs. to roll..
56@60¢
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.
Deafening Felt, 9, 6 and 4½ sq. ft. to lb. ton.....$18.00
Red Rope Roofing, 250 sq. ft. per roll.....$1.75

Tarred Paper—

1 ply (roll 400 sq. ft.), ton....
$32.50@35.50
2 ply, roll 108 sq. ft.....55¢
3 ply, roll 108 sq. ft.....75¢
Slater's Felt (roll 500 sq. ft.) .70¢

Sand and Emery—

Flint Paper and Cloth.60@60&10%
Garnet Paper and Cloth....25%
Emery Paper and Cl'h.60@60&10%

Parers— Apple—

Advance	℔ doz.	$4.00
Baldwin	℔ doz.	$4.00
Bonanza Improved	each	$6.50
Daisy	℔ doz.	$4.00
Dandy	each	$7.50
Eureka Improved	each	$20.00
Family Bay State	℔ doz.	$15.00
Improved Bay State	℔ doz.	$36.00
Little Star	℔ doz.	$5.00
New Lightning	℔ doz.	$7.00
Reading 72	℔ doz.	$3.25
Reading 78	℔ doz.	$6.25
Rocking Table	℔ doz.	$6.20
Turn Table '98	℔ doz.	$6.00
White Mountain	℔ doz.	$5.00

Potato—

Saratoga	℔ doz.	$7.00
White Mountain	℔ doz.	$6.00

Picks and Mattocks—

List Feb. 23, 1899 ..... 75%
Cronk's Handled Garden Mattock, ℔ doz., $6.40 ..... 33⅓%

Pinking Irons—

See *Irons, Pinking.*

Pins, Escutcheon—

Brass ..... 60@60&10%
Iron, list Nov. 11, '85 .. 60@60&10%

Pipe, Cast Iron Soil—

Carload lots.

Standard, 2-6 in. .. 50&10@50&10&5%
Extra Heavy, 2-6 in. ..... 65&10%
Fittings ..... 70&10@70&10&5%

Pipe, Merchant—

Consumers, Carloads.

	Steel. Blk.	Galv.	Blk.	Iron. Galv.
⅛ & ¼ in.	71%	55%	68%	52 %
⅜ in.	73%	59%	70%	56 %
½ in.	75%	63%	72%	60 %
¾ to 6 in.	79%	69%	76½%	66½ %
7 to 12 in.	74%	59%	71½%	56 %

Pipe, Vitrified Sewer—

Carload lots.

Standard Pipe and Fittings, 2 to 24 in.:
New England 68%
New York and New Jersey .. 71%
Maryland, Delaware, E. Pa. .. 75%
West. Pa. and West Va. 77%
Virginia 76%
Ohio, Michigan and Ky. 77%
Indiana 77%
NOTE.—Carload lots are generally delivered.

Pipe, Stove—

Edwards' Nested Stove Pipe:	C. L.	L. C. L.
5 in., per 100 joints	$7.00	$8.00
6 in., per 100 joints	7.50	8.50
7 in., per 100 joints	8.50	9.50

Planes and Plane Irons—Wood Planes—

Bench, first qual. ..... 40&10%
Bench, Second qual. ..... 50&10%
Molding ..... 33⅓&10%
Bailey's (Stanley R. & L. Co.) 40%
Chapin-Stephens Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality ..... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Toy and German ..... 40@40&10%
Chaplin's 60%
Ohio Tool Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality ..... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Adjustable Wood Bottom 60%
Unicn 60%

Iron Planes—

Bailey's (Stanley R. & L. Co.) 40%
Chaplin's Iron Planes ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) 35%
Ohio Tool Co.'s Iron Planes 60%
Sargent's ..... 60&10%
Union 60%

Plane Irons—

Wood Bench Plane Irons ..... 25&10@50%
Buck Bros. 30%
Chapin-Stephens Co. ..... 30@30&10%
Ohio Tool Co. 30%
Stanley R. & L. Co. 35%
Union 50%
L. & I. J. White ..... 20&5@25%

Planters, Corn, Hand—

Kohler's Eclipse ..... ℔ doz. $8.50

Plates—

Felloe ..... lb. ¼@4¼¢
Self-Sealing Pie Plates (R. M. Co.). ℔ doz. $2.00 ..... 50%

Pliers and Nippers—

Button Pliers .... 75&10@75, 10, 5%
Gas Burner, per doz., 5 in., $1.25 @ $1.30; 6 in., $1.45 @ $1.50.

Gas Pipe..	7	8	10	12-in.
	$2.00	$2.25	$3.00	$3.75

Acme Nippers ..... 50&5%
Cronk & Carrier Mfg. Co.:
American Button ..... 75&10%
Cronk's 60%
Stub's Pattern 50%
Combination and others 33⅓%
Heller's Farriers' Nippers, Pincers and Tools ..... 40&10@40&10&10%
The Nettleton Mfg. Co. Reversible Cutting Nippers 40%
P., S. & W. Tinners' Cutting Nippers 40%
Wm. Schollhorn Co.:
Bernard 33⅓%
Elm City 33⅓%
Lodi 50%
Paragon 50%
Swedish Side, End and Diagonal Cutting Pliers 50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds 40%

Plumbs and Levels—

Chapin-Stephens Co.:
Plumbs and 3 vials ..... 30@30&10&10%
Chapin's Imp. Brass Cor. 40@40&10&10%
Pocket Levels ..... 30@30&10&10%
Disston's Plumbs and Levels 70%
Disston's Pocket Levels 70%
C. E. Jennings & Co.'s Iron 33⅓%
C. E. Jennings & Co.'s Iron, Adjustable ..... 40&7½%
Stanley R. & L. Co. 45%
Stanley's Duplex 35%
Woods' Extension 33⅓%

Poachers, Egg—

Buffalo Steam Egg Poachers, ℔ doz., No. 1, $6.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00 ..... 50%

Points, Glaziers'—

Bulk and 1-lb. papers ..... lb. 10¢
½-lb. papers ..... lb. 9@10½¢
¼-lb. papers ..... lb. 9¾@11¢

Pokes, Animal—

Ft. Madison Hawkeye ..... ℔ doz. $3.25
Ft. Madison Western ..... ℔ doz. $4.00

Police Goods—

Manufacturers' Lists .. 25@25&5%
Tower's 25%

Polish—Metal, Etc—

Glasbrite, No. 2, 5 lb can (powder), each, $1.25; ℔ doz., $12.00; No. 2, 10 lb can (cake), each, $2.50; ℔ doz., $24.00.
Prestoline Liquid, No. 1 (½ pt.). ℔ doz., $3.00; No. 2 (1 qu.), $9.72.... 40%
Prestoline Paste 40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ℔ doz. 50¢; ℔ gro. $4.50; ½ lb boxes, ℔ doz. $1.25; 1 lb boxes, ℔ doz. $2.25.
U. S. Liquid, 8 oz. cans, ℔ doz., $1.25; ℔ gro., $12.00.
Barkeepers' Friend Metal Polish, ℔ doz., $1.75; ℔ gro., $18.00.
Wynn's White Silk, ½ pt. cans, ℔ doz. $2.00

Stove—

Black Eagle Benzine Paste, 5 lb cans, ℔ lb 10¢
Black Eagle, Liquid, ½ pt. cans.. ℔ doz. 75¢
Black Jack Paste, ¾ lb cans, ℔ gr. $9.00
Black Kid Paste, 5 lb can.... each, $0.65
Ladd's Black Beauty Liquid, per 100 tins $6.75
Joseph Dixon's, ℔ gr. $5.75 ..... 10%
Dixon's Plumbago ..... ℔ lb 8¢
Fireside ..... ℔ gr. $2.50
Gem, ℔ gr. $4.50 ..... 10%
Japanese ..... ℔ gr. $3.50
Jet Black ..... ℔ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.. ℔ doz. $1.50
Wynn's:
Black Silk, 5 lb pail ..... each 70¢
Black Silk, ½ lb box ..... ℔ doz. $1.00
Black Silk, 5 oz. box ..... ℔ doz. $0.75
Black Silk, ½ pt. liq. ..... ℔ doz. $1.00

Poppers, Corn—

1 qt., Square ..... *gro. $9.00*
1 qt., Round ..... *gro. $10.00*
1½ qt., Square ..... *gro. $11.00*
2 qt., Square ..... *gro. $13.00*

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts ..... each $1.30

Potato Parers—

See *Parers, Potato.*

Pots, Glue—

Enameled 40%
Tinned 35%

Powder—

In Canisters:
Duck, 1 lb ..... *each 45¢*
Fine Sporting, 1 lb .... *each 75¢*
Rifle, ½-lb ..... *each 15¢*
Rifle, 1-lb ..... *each 25¢*
In Kegs:
12½-lb. kegs *$3.50*
25-lb. kegs *$4.50*
King's Semi-Smokeless:

Keg (25 lb bulk)	$6.50
Half Keg (12½ lb bulk)	$3.50
Quarter Keg (6¼ lb bulk)	$1.90
Case 24 (1 lb cans bulk)	$8.50
Half case (1 lb cans bulk)	$4.50

King's Smokeless: Shot Gun. Rifle.

Keg (25 lb bulk)	$12.00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17.00
Half case 12 (1 lb c. bk)	7.25	8.75

Robin Hood Sm'less Shot Gun.. 50&20%

Presses—Fruit and Jelly—

Enterprise Mfg. Co. ..... 20@25%

Seal Presses—

Morrill's No. 1, ℔ doz., $20.00 ..... 50%

Pruning Hooks and Shears

See *Shears.*

Pullers, Cork—

Invincible Cork Puller $21.00

Pullers, Nail—

Cyclops 50%
Miller's Falls, No. 3, ℔ doz., $12.00 ..... 33⅓&10%
Morrill's No. 1, Nail Puller, ℔ doz. $20.00 ..... 50%
Pearson No. 1, Cyclone Spike Puller, each $30.00 ..... 50%
Scranton, Case Lots:
No. 2B (large) $5.50
No. 3B (small) $5.00
Smith & Hemenway Co.:
Diamond B, No. 2, case lots.. ℔ doz. $6.00
Diamond B, No. 3, case lots.. ℔ doz. $5.50
Giant No. 1, ℔ doz. $18; No. 2, $16.50; No. 3, $15 ..... 33⅓%
Staple Pullers 60%
Parrot Tack and Stub Puller, ℔ doz., 75c.; ℔ gro., $6.00

Pulleys, Single Wheel—

Inch	1½	1¾	2	3
Awning or Tackle, doz.	$0.30	.35	.60	1.05

Hay Fork, Swivel or Solid Eye. doz., ¼ in., $1.25; 5 in., $1.55

Inch	2	2½	2¼
Hot House, doz.	$0.65	.85	1.20
Inch	1¼	1½	1¾ 2
Screw, doz.	$0.16	.19	.25 .30
Inch	1¾	2	2¼ 2½
Side, doz.	$0.25	.40	.55 .60
Inch	1½	1¾	2 2½

Stowell's:
Ceiling or End, Anti-Friction.. 60&10%
Dumb Waiter, Anti-Friction.. 60&10%
Electric Light 60%
Side, Anti-Friction ..... 60&10%

Sash Pulleys—

Common Frame; Square or Round End, per doz, 1¾ and 2 in. ..... *16@19¢*
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in.. *16@19¢*
Acme ..... 1¾ in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 4, 2 in.. ℔ doz. 50%
Grand Rapids All Steel Noiseless.. 50%
Ideal ..... 70&10%
Niagara ..... 1¾ in., 16¢; 2 in., 19¢
No. 26, Troy.. 1¾ in., 14½¢; 2 in., 16½¢
Star ..... 1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See Blocks.

Pumps—

Cistern ..... *60@60&10%*
Pitcher Spout ..... *80@80&10%*
Wood Pumps, Tubing, &c. *45@50%*
Barnes Dbl. Acting (low list) 50%
Barnes' Pitcher Spout ..... 75&10&5%
Contractors' Rubber Diaphragm No. 2, B. & L. Block Co. $16.00
Daisy Spray Pump ..... ℔ doz. $6.75
Flint & Walling's, Fast Mail Hand, (low list) 55%
Flint & Walling's Fast Mail (low list) ..... 55&5%
Flint & Walling's Tight Top Pitcher. 80%
National Specialty Mfg. Co., Measuring, $6.00 ..... 30%
Mechanical Sprayer $6.00
Myers' Pumps (low list) 50%
Myers' Power Pumps 50%
Myers' Spray Pumps ..... 50&10%

Pump Leathers—

Plunger and Lower Valve—Per gro.:

Inch...	2	2¼	2½	2¾
	$2.20	2.50	2.75	3.00
Inch...	3	3¼	3½	3¾ 4
	$3.30	3.60	3.85	4.10 4.40

Plunger Cup Leathers—Per 100:

Inch...	2½	3	3½	4
	$2.75	3.85	5.00	6.00

Punches—

Saddlers' or Drive, good ..... *doz. 50@75¢*
Spring, single tube, good quality ..... *$1.75@2.00*
Revolving (4 tubes) ..... *doz. $3.50@3.75*
Bemis & Call Co.'s Cast St'l Drive. 50%
Bemis & Call Co.'s Check 55%
Morrill's Nos. 1AA, 1A, 1B, 1C, $15.00 ..... 50%
Hercules, 1 die, each $5.00 ..... 50%
Niagara Hollow Punches 40%
Niagara Solid Punches ..... 55&10%
Wm. Schollhorn Co.:
Bernard 33⅓%
Lodi 50%
Paragon 50%
Steel Screw, B. & K. Mfg. Co. 50%
Tinners' Hollow, P., S. & W. Co. .. 40%
Tinners' Solid, P., S. & W. Co., ℔ doz., $1.44 ..... 60%

Rail—Barn Door, &c.—

Sliding Door, Painted Iron .... 2½@2¾¢
Sliding Door, Wrought Brass, 1¼ in., lb., 36¢ 30%
Allith Mfg. Co.:
No. 1, Reliable Hgr. Track, ℔ ft. 5½¢
No. 2, Reliable Hgr. Track, ℔ ft. 7¢
Cronk's:
Double Braced Steel Rail.. ℔ ft. 2¾¢
O. N. T. Rail ..... 2¼¢
Griffin's:
xxx, ℔ 100 ft., 1 x 3-16 in., $3.00; 1¼ x 3-16 in., 3.50.
Hinged Hanger, ℔ 100 ft., 1 x 3-16 in., $3.10; 1¼ x 3-16 in., $3.60.
Lane's:
Hinged Track, ℔ 100 ft., 1 in., $3.40; 1¼ in., $4.10.
O. N. T., ℔ 100 ft., 1 in., $2.75; 1¼ in., $3.50; 1½ in., $4.00.
Standard, 1¼ in. ..... ℔ 100 ft. $4.00
Lawrence Bros.:
℔ 100 ft., No. 201, $4.00; No. 202, $4.00
New York, 1 x 3-16 in., ℔ 100 ft. $2.75
McKinney's:
Hinged Hanger Rail, ℔ ft., 11¢.. 50%
None Better ..... ℔ ft. 3¾¢
Standard ..... ℔ ft. 4 ¢
Myers' Stayon Track ..... 60&10%
Richards' Mfg. Co.:
Common, 1 x 3-6 in., $3.00; 1¼ x 3-16, $3.25; 1¼ x 3-16, $3.50.
Special Hinged Hanger Rail... 60&10%
Lag Screw Rail, No. 65 ..... 50%
Gauge Trolley Track, ℔ ft., No. 31, 9¢; No. 32, 11¢; No. 33, 20¢.
No. 50 ..... 60&10%
Nos. 61, $3.00; 62, $3.25; 63, $3.50; 64, $4.00; 45, $3.25; 46, $3.50; 49, No. 1, $3.25; 49, No. 2, $3.50.
Safety Door Hanger Co.'s Storm King Safety 60%
Safety Door Hanger Co.'s U. S. Standard 60%
Stowell's:
Cast Rail ..... ℔ ft. 1¾¢
Steel Rail, Plain 25%
Wrought Bracket, 1 3-16 in.... ℔ ft. 3¢
Wrought Bracket, 1½ x 5-16.. ℔ ft. 7¢
Swett's Hylo, ℔ ft. 11¢ 60%
P. L. B. Steel Rail ..... ℔ 100 ft. $3.00
No. 0, 1 x 3-16 ..... ℔ 100 ft. $2.75

Rakes—

NOTE.—Many goods are sold at net prices.
Fort Madison Red Head Lawn.... $3.25
Fort Madison Blue Head Lawn.... $2.70
Jackson Lawn, 29 and 30 teeth, ℔ doz., net $4.25
Cronk's:
New Champion Garden, ℔ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00.. 75%
Victor Garden, ℔ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00 ..... 80%
Queen City Lawn, ℔ doz., 20 teeth, $3.45; 24, $3.60 ..... net.
Anticlog Lawn, ℔ doz. $4.00
Malleable Garden ..... 70&10%
Kohler's:
Lawn Queen, 20-tooth ..... ℔ doz. $3.45
Lawn Queen, 24-tooth ..... ℔ doz. $3.60
Paragon, 20-tooth ..... ℔ doz. $2.75
Paragon, 24-tooth ..... ℔ doz. $3.00
Steel Garden, 14-tooth .... ℔ doz. $2.40
Malleable Garden, 14-tooth, ℔ doz. $1.75@2.00
Weldless Steel Garden ..... 75&5%

Rasps, Horse—

Dizston's 75%
Heller Bros. ..... 70&5@70&10&5%
McCaffrey's American St'd... 60&10&5%
New Nicholson ..... 70&10@75%
See also Files.

Razors—

Boras—I C 60%
Fox Razors, No. 42.. ℔ doz. $20.00 } 40%
Fox Razors, No. 41.. ℔ doz. $20.00 } 40%
Fox Razors, No. 82, Platina.. ℔ doz. $25.00 } 40%
Red Devil 50%
Silberstein:
Carbo Magnetic $18.00
Griffon, No. 65 ..... $15.00
Griffon, No. 00 ..... $12.00
All other Razors 40%

Safety Razors—

Kampfe Bros.:
Star Safety 25%
Star Interchangeable 25%
Star Safety Corn 25%
Silberstein 40%

Reels, Fishing—

Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M N, Q 16, A 16, B 16, 4008, Rubber Populo, Nickeled Populo 20%
Aluminum, German Silv., Bronze. 25%
1240 N, 124 N 20%
3004 N, 06 N, 6 RM, G 9 ..... 25%
4 N, 6 PN, 24 N, 26 PN 20%
2904 P 33⅓%
2904 PN 33⅓%
0924 N 33⅓%
02084 N 33⅓%
002904 PN 33⅓%
802 N 33⅓%
986 PN, 2904 N, 974 PN 25%
5009 PN, 5009 N 20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR 20%
304 P, 304 PN, 00304 P, 00304 PN. 33⅓%

Registers—*List July 1, 1903.*

Japanned, Electroplated and Bronzed ..... 70&10%

Revolvers—

Single Action ..... *95¢@$1.00*
Double Action, except 44 cal. *$1.85*
Double Action, 44 caliber *$2.00*
Automatic *$3.45*
Hammerless *$4.00*

Riddles, Hardware Grade

16 in. ..... *per doz. $2.50@$2.75*
17 in. ..... *per doz. $2.75@$3.00*
18 in. ..... *per doz. $3.00@$3.25*

Rings and Ringers—Bull Rings—

	2	2½	3 inch.
Steel	$0.70	0.75	0.80 doz.
Copper	$1.00	1.15	1.40 doz.

Rea's Improved Self-Piercing, Copper, 2 in., ℔ doz., $1.25; 2½ in., $1.50; 3 in., $1.75.

Hog Rings and Ringers—

Hill's Rings, gro. boxes .. *$4.00@4.50*
Hill's Ringers, Gray Iron ..... *doz. 50@55¢*
Hill's Ringers, Malleable Iron .. *doz. 70@75¢*
Blair's Rings ... *per gro. $4.75@5.25*
Blair's Ringers. per doz. $0.60@ .65
Brown's Rings .. *per gro. $5.00@5.50*
Brown's Ringers. per doz. $0.60@ .65

Rivets and Burrs—

Copper ..... *45@45&5%*
Iron or Steel ..... *75@75&5%*

Bifurcated and Tubular—

Assorted in Boxes.
Bifurcated, per doz. boxes, pasteboard boxes, 23@25¢; Tin boxes, 29@32¢.
Tubular, per doz. boxes, 50 count, 29@32¢ ℔ 100 count, 51@58¢.

Rollers—

Acme, Stowell's Anti-Friction 50%
Barn Door, Sargent's list 60%
Cronk's Stay No. 65, $0.90; No. 50 ..... $1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56 ..... $0.84
Lane's Stay 40%
Richards' Stay:
Handy Adj. and Reversible No. 53.75¢
O. K. Adj. and Reversible No. 58.50¢
Lag Screw, Nos. 55 and 57 ..... 50%
Underwriters', Nos. 59, 60 ..... 50%
Favorite, No. 54 ..... 60%
Stowell's Barn Door Stay.. ℔ doz. $1.00
Swett's Anti-Friction 50%
Screw and Spike Stay ..... ℔ doz. 65¢
Hinge Adjustable Stay ..... ℔ doz. 90¢

Rope—

Manila, 7-16 in. diam. and larger: Pure ..... *lb., 12½¢*
Sisal, 7-16 in. diam. and larger: Pure ..... *lb., 10¢*
Sisal, 7-16 in. diam. and larger: No. 2 quality ..... *lb., 8¢*
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse: Mixed ..... *lb., 8¢*
Pure ..... *lb. 10¢*
Sisal, Tarred, Medium Lath Yarn, Coarse and Untarred: Mixed ..... *lb. 8¢*
Pure ..... *lb. 10¢*
Cotton Rope: Best, ¼-in. and larger. 16½@18¢
Medium, ¼-in. and larger, 15½@16½¢
Common, ¼-in. and larger.. 10¢
In coils, ½¢ advance.
Jute Rope: Thread No. 1, ¼-in. & up. lb. 6½¢
Thread No. 2, ¼-in. & up, lb. 5½¢
Old Colony Manila Transmission Rope ..... ℔ lb 17½¢

Wire Rope—

Galvanized ..... *37½&21½%*
Plain ..... *45&21½%*

Ropes, Hammock—

Covert Mfg. Co.:

Jute 45%
Sisal 33⅓%
Covert Saddlery Works.....60&5%

Rulers, Desk—
Stimpson & Son:
Boxwood and Maple.....30&10%

Rules
Boxwood .....60&10&10%
Ivory .....35&10@35&10&5%
Chapin-Stephens Co.:
Boxwood .....60@60&10%
Flexifold .....27½&10&2½%
Ivory .....35@35&10&10%
Miscellaneous .....50@50&10&10%
Combination .....55@55&10%
Stationers' .....10@10&10%
Keuffel & Esser Co.:
Folding, Wood.....35&10%
Folding, Steel.....33⅓&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....60%
Stanley R. & L. Co.:
Boxwood 62½%
Ivory 45%
Miscellaneous 60%
Zig Zag.....40%
Zig Zag, Pin Joint.....42½%
Upson Nut Co.:
Boxwood .....60@60&10%
Ivory .....35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—
See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—
Atkins':
Circular 50%
Band .....50&10@60%
Cross Cuts.....35&5%
Mulay, Mill and Drag.....50%
One-Man Saw.....40%
Wood Saws.....40%
Hand, Compass, &c.....40%
Chapin-Stephens Co.:
Turning Saws and Frames..30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws.....30&10&10%
Disston's:
Circular, Solid and Ins'ted Tooth.50%
Band, 2 to 14 in. wide.....60%
Band, ¼ to 1¾.....50%
Crosscuts 50%
Narrow Crosscuts.....50%
Mulay, Mill and Drag.....50%
Framed Woodsaws.....35%
Woodsaw Blades.....35%
Woodsaw Rods.....25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8.....25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination.....30%
Compass, Key Hole, &c.....25%
Butcher Saws and Blades.....35%
C. E. Jennings & Co.'s:
Back Saws.....25%
Butcher Saws.....30%
Compass and Key Hole Saws..35&5%
Framed Wood Saws.....30%
Hand Saws.....20&2½%
Wood Saw Blades.....35%
Millers Falls:
Butcher Saws.....15&10%
Star Saw Blades.....15&10%
Peace & Richardson's Hand Saws...30%
Simonds':
Circular Saws.....50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws.50%
Band Saws.....50%
Back Saws.....25@25&7½%
Butcher Saws.....35@35&7½%
Hand Saws.....25@25&7½%
Hand Saws, Bay State Brand.....42½%
Compass, Key Hole, &c..25@25&7½%
Wood Saws.....35@35&7½%
Springfield Mach. Screw Co.:
Diamond Kitchen Saws....40&10@50%
Butcher Saws Blades.....35@40%
Wheeler, Madden & Clemsen Mfg. Co.'s Cross Cut Saws.....50%

Hack Saws—
Atkins' Hack Saw Blades A A A..25%
Disston's:
Concave Blades.....25%
Keystone 40%
Hack Saw Frames.....30%
Fitchburg File Works, The Best...35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180.....40&7½%
Hack Saws, Nos. 175, 180, complete, 40&7½%
Goodell's Hack Saw Blades.....40%
Griffin's Hack Saw Frames..35&5&10%
Griffin's Hack Saw Blades....35&5&10%
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades.....35%
Diamond Hack Saw Frames.....50%
Star Hack Saws and Blades.....15&10%
Sterling Hack Saw Blades....30&10&5%
Sterling Hack Saw Frames...30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00..10%
Victor Hack Saw Blades.....25%
Victor Hack Saw Frames.....40%

Scroll—
Barnes' No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20.....26%
Lester, complete, $10.00.....15&10%
Rogers, complete, $4.00.....15&10%

Scalers, Fish—
Covert's Saddlery Works.....60&10%

Scales—
Family, Turnbull's....50@50&10%
Counter:
Hatch, Platform, ½ oz. to 4 lbs. .....doz. $5.50
Two Platforms, ½ oz. to 8 lbs. .....doz. $16.00
Union Platform, Plain.$1.70@1.90
Union Platform, Stpd.$1.85@2.15
Chatillon's:
Eureka 25%
Favorite 40%
Crocers' Trip Scales.....50%
Chicago Scale Co.:
The "Little Detective"....25 lbs 50%
Union or Family No. 2.....60%
Portable Platform (reduced list)..50%
Wagon or Stock (reduced list).25@35%
"The Standard" Portables.....50%
"The Standard" R. R. and Wagon..50%

Scrapers—
Box, 1 Handle.....doz. $2.00@2.25
Box, 2 Handle.....doz. $2.60@2.85
Ship....Light, $2.00; Heavy, $4.50
Adjustable Box Scraper (S. R. & L. Co.), $6.00.....45%
Chapin-Stephens Co., Box, 30@30&10&10%

Screens, Window and Frames—
Maine Screen Frames.....40&10&5%
See also *Doors.*

Screws—Bench and Hand
Bench, Iron, doz., 1 in., $2.50@2.75; 1⅛, $3.00@3.25; 1¼, $3.50@3.75
Bench, W'd, Beech.doz. 30@30&5%
Hand, Wood.....30@30&5%
R. Bliss Mfg. Co., Hand....30@30&10%
Chapin-Stephens Co., Hand..30@30&10%
Ohio Tool Co., Bench and Hand..30%

Coach, Lag and Hand Rail—
Lag, Cone Point, list Oct. 1, '99 .....75&15%
Coach, Gimlet Point, list Oct. 1, '99.....75&10%
Hand Rail, list Jan. 1, '81.... 70&10@75%

Jack Screws—
Standard List.....80@80&5%
Millers Falls.....50&10&10%
Millers Falls, Roller.....50&10%
P., S. & W.....50%
Sargent .....70&10%
Swett Iron Works.....75&10@80&5%

Machine—
List Jan. 1, '98:
Flat or Round Head, Iron.... 50@50&10%
Flat or Round Head, Brass.... 50@50&10%

Set and Cap—
Set (Iron).....80%
Set (Steel), nex advance over Iron 25%
Sq. Hd. Cap.....75%
Hex. Hd. Cap.....75%
Rd. Hd. Cap.....60&10%
Fillister Hd. Cap.....60&10&10%

Wood—
List July 23, 1903.
Flat Head, Iron....87½&10@..%
Round Head, Iron...85 &10@..%
Flat Head, Brass....85 &10@..%
Round Head, Brass..80 &10@..%
Flat Head, Bronze...77½&10@..%
Round Head, Bronze.75 &10@..%
Drive Screws.....87½&10%

Scroll Saws—
See *Saws, Scroll.*

Scythes— *Per doz.*
Grass, No. 1, Plain Finish...$6.25
Clipper, Bronzed Webb....$6.50
No. 3 Clipper, Pol'd Webb..$6.75
No. 6 Clipper & Solid Steel.$7.00
Bush, Weed & Bramble, No. 2.$6.50
Grain, No. 1.....$8.25
Bronzed Webb, No. 1.....$8.50
Nos. 3 & 4 Clipper, Grain..$8.75
Solid Steel No. 6.....$9.25

Seeders, Raisin—
Enterprise .....25@30%

Sets— Awl and Tool—
Aiken's Sets, Awl and Tools:
No. 20, ℔ doz., $10.00.....60&10%
Fray's Adj. Tool Handles, Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
C. E. Jennings & Co.'s Model Tool Holders 30%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18....15&10%

Garden Tool Sets—
Ft. Madison Three Plows, Hoe, Rake and Shovel.....℔ doz sets $9.00

Sets, Nail—
Octagon .....gro. $3.50@3.75
Buck Bros.....27½%
Cannon's Diamond Point, ℔ gro.$12.40%
Mayhew's .....℔ gro. $9.90
Snell's Cor'gated, Cup Pt...℔ gro. $7.20
Snell's Knurled, Cup Pt....℔ gro. $7.20
Springfield Mach. Screw Co.:
Diamond Knurled Cup Pt.℔ gro. $7.50

Rivet—
Regular list.....75@75&10%

Saw—
Aiken's:
Genuine .....50&10%
Imitation .....50&10%
Atkin's:
Criterion 40%
Adjustable 40%
Bemis & Call Co.'s:
Cross Cut.....30%
Plate 20%
Disston's Star and Monarch.....25%
Morrill's No. 1, $15.00.....50%
Nos. 3 and 4, Cross Cut, $20.00...50%
No. 5, Mill, $30.00.....50%
Nos. 10, 11, 95, $15.60.....50%
No. 1 Old Style, $10.00..50%
Special, $16.25.....50%
Giant Royal Cross Cut.....℔ doz. $8.00
Royal, Hand.....℔ doz. $4.50
Taintor Positive.....℔ doz. $6.75

Shaving—
Fox Shaving Sets, No. 30 .....
.....℔ doz., net, $24.00
Smith & Hemenway Co.'s.....60%

Sharpeners, Knife—
Chicago Wheel & Mfg. Co.....70%
Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ℔ doz.....$1.50
Mounted Kitchen Sand Stone, ℔ doz.....$1.50
Natural Grit Carving Knife Hones, ℔ doz.....$3.00
Quick Cut Emery Carving Knife Hones, ℔ doz.....$1.50
Quick Edge Pocket Knife Hones, ℔ doz.....$2.50

Skate—
Smith & Hemenway Co.....20%

Shaves, Spoke—
Iron .....doz.$1.10@1.25
Wood .....doz.$1.75@2.25
Bailey's (Stanley R. & L. Co.).....45%
Razor Edge (Stanley R. & L. Co.)..35%
Chapin-Stephens Co.....30@30&10&10%
Goodell's, ℔ doz. $9.00.....15&10%
Wood's F1 and F2.....50%

Shears—

	7	8	9 in.	
Cast Iron..				
Best ...	*$16.00*	*18.00*	*$20.00*	*gro.*
Good ...	*$13.00*	*15.00*	*17.00*	*gro.*
Cheap ..	*$5.00*	*6.00*	*7.00*	*gro.*

Straight Trimmers, &c.:
Best quality Jap....70@70&10%
Best quality, Nickel..60@60&10%
Fair quality, Jap....80@80&5%
Fair quality, Nickel..75@7"&10%
Tailors' Shears.....40@40&10%
Acme Cast Shears.....40@40&5%
Heinisch's Tailor's Shears.....10%
Wilkinson's Sheep, 1900 list, 30&10&5%
Grass, 50&10%; Horse or Mule, 50&10%

Tinners' Snips—
Steel Blades.....20&5@20&10%
Steel Laid Blades....40&10@50%
Forged Handles, Steel Blades, Berlin 50@50&5%
Heinisch's Snips.....40%
Jennings & Griffin Mfg. Co.'s, 6½ to 10 in.....50%
Niagara Snips.....40%
P., S. & W. Forged Handles.....20%

Pruning Shears—
Cronk's Hand Shears.....33⅓%
Cronk's Wood Handle Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ℔ doz. $18.00.....25%
Disston's Pruning Hook, ℔ doz. $12.00 .....25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades....50&10%
P., S. & W. Co.....33⅓%
Wilkinson's Hedge, Wilcut Brand, 60&10%
Wilkinson's Lawn and Border, Wilcut Brand.....60&10%

Sheaves—Sliding Door—
Stowell's Anti-Friction.....50%
Patent Roller, Hatfield's, Sargent's list .....70&10%
Reading 40%
R. & E. list.....33⅓%
Wrightsville Hatfield Pattern.....80%

Sliding Shutter—
Reading list.....40%
R. & E. list.....33⅓%
Sargent's list.....10&10%

Shells—Shells, Empty—
Brass Shells, Empty:
Climax, Club, Rival, 10 and 12 gauge .....65&5%
Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Magic, 10, 12, 16 and 20 gauge..25&5%
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge 20%
Climax, Union, League, New Rival, 10 and 12 gauge.....25%
Climax, Union, League, New Rival, 14, 16 and 20 gauge.....20%
Expert, Metal Lined and Pigeon, 10 12, 16 and 20 gauge.....33⅓
Robin Hood, Low Brass.....20&5%
Robin Hood, High Brass.....30&5%

Shells, Loaded—
Loaded with Black Powder..40%
Loaded with Smokeless Powder, medium grade.....40&5%
Loaded with Smokeless Powder, high grade.....40&10&10%
Robin Hood Smokeless Powder:
Robin Hood, Low Brass.....50%
Comets, High Brass.....50&10&5%

Shoes, Horse, Mule, &c.—
F.o.b. Pittsburgh:
Iron .....per keg $4.00
Steel .....per keg $3.75
Burden's, all sizes.....℔ keg $3.90

Shot—
Drop, up to B, 25-lb. bag....$1.80
Drop, B and larger ..... per 25-lb. bag. $2.05
Buck, 25-lb. bag.....$2.05
Chilled, 25-lb. bag.....$2.05

Shovels and Spades—
Association List, Nov. 15, 1902..40%

Snow Shovels—
Long Handle.....$2.75@3.00
Wood and Mail, D. Handle. $3.25@3.50

Sieves and Sifters—
Hunter's Imitation..... gro.$9.50@10.00
Hunter's Genuine..... per gro. $12.00@12.50
Buffalo Metallic Blued, R. M. Co., ℔ gr.

14&16	16&18	18&20
$13.20	$13.50	$14.40

Shaker (Barler's Pat.) Flour Sifters, ℔ doz., $2.00.....20%

Sieves, Seamless Metallic

	Per dozen.			
Mesh	*1¼*	*16*	*18*	*20*
Iron Wire....	*$1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire..	*$1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—
Nested, 10, 11 and 12 Inch.
Mesh 18, Nested....doz. $0.90@0.95
Mesh 20, Nested....doz. $1.00@1.05
Mesh 24, Nested....doz. $1.30@1.40

Sinks, Cast Iron—
Painted, Standard list:
12 x 12 to 22 x 36 in....60&5%
20 x 40 to 24 x 50 in.....55%
24 x 60 to 24 x 120 in.....35%
Barnes' low list:
Up to and including 20 x 36 in....60%
20 x 40 to 24 x 50 in.....55%
NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—
Cast Iron.....80@80&10%
Steel .....40@40&10%

Slates, School—
Factory Shipments.
"D" Slates.....50@50&10%
Eureka, Unexcelled Noiseless.. 60&5 tens
Victor A, Noiseless.60&4 tens &5%

Slaw Cutters—See *Cutters.*

Snaps, Harness—
German .....40@40&10%
Covert Mfg. Co.:
Derby .....30&2%
High Grade.....45%
Jockey 35%
Trojan 45%
Yankee .....30&2%
Yankee Roller.....30&2%
Covert's Saddlery Works:
Crown 60%
German 60%
Model 60%
Triumph 60%
Oneida Community:
Harness Snaps, 1 inch.....60&5%
Swivel Snaps.....60%
Swivels 50%
Sargent's Patent Guarded....66⅔&10%

Snaths—
Scythe 50%

Snips, Tinners—See *Shears.*

Spoons and Forks—
Silver Plated—
Good Quality.....50&10@60&5%
Cheap .....60@60&10%
International Silver Co.:
1847 Rogers Bros. and Rogers & Hamilton .....40&10%
Rogers & Bro., William Rogers' Eagle Brand.....50&10%
Anchor, Rogers Brand.....60%
Wm. Rogers & Son.....60&10%

Miscellaneous—
German Silver.....60@60&5%
Cattaraugus Cutlery Co.:
Seneca Silver.....50%

Tinned Iron—
Teas .....per gro. 45@50¢
Tables.....per gro. $0.50@$1.00

Springs— Door—
Chicago (Coil).....40&10%
Gem (Coil).....20%
Pullman (Coil).....25%
Reliance (Coil).....40&10%
Star (Coil).....30%
Torrey's Rod, 39 in.....℔ doz. $1.10
Victor (Coil).....50&10&10%

Carriage, Wagon, &c.—

	Per lb
1¼ in. and Wider:	
Black	*4@4¼¢*
Half Bright.....	*4@4¼¢*
Bright	*4½@4¾¢*

Painted Seat Springs:
1½ x 2 x 26.....per pr. 42¢
1¼ x 3 x 28.....per pr. 70¢

Sprinklers, Lawn—
Enterprise .....25@30%
Philadelphia No. 1, ℔ doz. $12; No. 2, $15; No. 3, $24.....30%
Pleuger & Henger Mfg. Co.:
Cactus 70%
Japanese 75%
Nationals 65%

Squares—
Nickel plated.. } *List Jan. 5, 1900.*
Steel and Iron.. } *75&10@80%*
Rosewood Hdl. Try Square and T-Bevels .....60&10&10@70%
Iron Hdl. Try Squares and T-Bevels .....40&10@40&10&10%
Disston's Try Sq. and T-Bevels....70%
Winterbottom's Try and Miter, No. 1, 40%; No. 2.....50%

Squeezers, Lemon
Wood, Common, gro., No. 0, $5.25@$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap .....doz. $1.00
Good Grade.....doz. $1.25
Tinned Iron.....doz. $0.75@1.25
Iron, Porcelain Lined...doz. $1.75

Staples—
Barbed Blind.....lb. 6@6½¢
Electricians', Association list. 80&10&10&10%
Fence Staples, Plain, $2.25; Galvanized $2.55
Poultry Netting Staples..... per lb. 3¼@3½¢
Grand Crossing Tack Co.'s list..80&10%

Steels, Butchers'—
Dick's 30%
Foster Bros.'.....30%
C. & A. Hoffmann's.....40%

Steelyards— ....30@30&10%

Stocks and Dies—
Blacksmiths' .....50@50&10%
Curtis Rev'ble Ratchet Die Stock..25%
Derby Screw Plates.....25%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plates.....25%

Stoners, Cherry—
Enterprise .....25@30%

Stones—Oil, &c.
Chicago Wheel & Mfg. Co., 1904 list:
Gem Corundum Oil, Double Grit.60%
Gem Corundum Axe, Single or Double Grit.....60%
Gem Corundum Slips.....60%
Gem Corundum Razor Hones....50%
Pike Mfg. Co., 1904 list: ℔ lb.
Arkansas St. No. 1, 3 to 5½ in.$2.80
Arkansas St. No. 1, 5½ to 8 in.$3.50
Arkansas Slips No. 1.....$4.00
Lily White Washita, 4 to 8 in.60¢
Rosy Red Washita, 4 to 8 in..60¢
Washita St., Extra, 4 to 8 in.50¢
Washita St., No. 1, 4 to 8 in.40¢
Washita St., No. 2, 4 to 8 in.30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Washita Slips, No. 2.....40¢
India Oil Stones (entire list)....33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit.....33⅓%
Quickcut Emery and Corundum Axe Stone, Double Grit.....33⅓%

Quickcut Emery Rubbing Bricks 33⅓%
Hindostan No. 1, R'g'lar, ₰ lb 8¢
Hindostan No. 1, Small, ₰ lb 10¢
Axe Stones (all kinds) 33⅓%
Turkey Oil Stones, Extra, 5 to 8 in., ₰ lb 80¢
Queer Creek Stones, 4 to 8 in. 20¢
Queer Creek Slips 40¢
Sand Stone 6¢

Scythe Stones—

Chicago Wheel & Mfg. Co.:
Gem Corundum, 10 in., $8.00 ₰ gro., 12 in., $10.80.
Norton Emery Scythe Stones:
Less than gross lots, ₰ gro. $9.00
One gross or more, ₰ gro. $7.20
Lots of 10 gross or more, ₰ gro. $6.00
Pike Mfg. Co., 1901 list:
Black Diamond S. S., ₰ gro. $12.00
Lamoille S. S., ₰ gro. $11.00
White Mountain S. S., ₰ gro. $9.00
Green Mountain S. S., ₰ gro. $6.00
Extra Indian Pond S.S., ₰ gro. $7.50
No. 1 Indian Pond S.S., ₰ gro. $7.00
No. 2 Indian Pond S.S., ₰ gro. $4.50
Leader Red End S. S., ₰ gro. $4.50
Quick Cut Emery, ₰ gro. $10.00
Pure Corundum, ₰ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat, $8
Emery Scythe Rifles, 3 Coat, $10
Emery Scythe Rifles, 4 Coat, $12
Balance of 1904 list 33⅓% 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers, ₰ gro. $9.00

Stops— Bench—

Millers Falls 15&10%
Morrill's, ₰ doz., No. 1, $10.00 50%
Morrill's, No. 2, $12.50 50%

Door—

Chapin-Stephens Co. 40@60&10%

Plane—

Chapin-Stephens Co. 20%

Straps— Box—

Cary's Universal, case lots 25&20%

Hame—

Covert's Saddlery Works 60&10%

Stretchers, Carpet—

Cast Iron, Steel Points, doz. 60@60&10%
Socket .doz. $1.60
Bullard, ₰ doz. $4.00
Excelsior Stretcher and Tack Hammer Combined, ₰ doz. $6.00 20%

Strops, Razor—

Star Diagonal Strop 25%

Stuffers, Sausage—

Enterprise Mfg. Co. 25@25&7½%
National Specialty Co., list Jan. 1, 1902 30&5%

Sweepers, Carpet—

National Sweeper Co.: ₰ doz.
Louis XV, Roller Bearing, Gold Plated $120.00
Hepplewhite, Roller Bearing, Silver Plated $72.00
Sheraton, Roller Bearing, N'kel. $60.00
Ye Mission, Roller Bearing, Oxidized Coppered $36.00
Transparent, Roller Bearing, Plate Glass top, Nickeled $36.00
National Queen, Roller Bearing, Fancy Veneers $27.00
Loyal, Roller Bearing, Veneers, Nickeled $25.00
Triple Medal, Roller Bearing, Nickeled $24.00
Marion, Roller Bearing, N'kel. $24.00
Marion Queen, Roller Bearing, Nickeled $24.00
Monarch, Roller Bearing, N'kel. $22.00
Monarch, Roller Bearing, Jap. $20.00
Perpetual, Regular B'r'gs, N'kel. $20.00
Perpetual, Regular B'r'gs, Jap. $18.00
Monarch Extra (17 in. case), Roller Bearing, Nickeled $36.00
Monarch Extra (17 in. case), Roller Bearing, Japanned $33.00
Auditorium (26 in. case), Roller Bearing, Nickeled $54.00
Mammoth (30 in. case), Roller Bearing, Nickeled $60.00

NOTE.—Rebates: 50c *per dozen on three-dozen lots;* $1 *per dozen on five-dozen lots;* $2 *per dozen on ten-dozen lots;* $2.50 *per dozen on twenty-five-dozen lots.*

Streator Metal Stamping Co.:
Model E, Sanitaire, ₰ doz. $25.00
Model A, Sterling, ₰ doz. $25.00
Model B, Sterling, Nickeled, ₰ doz. $23.00
Model B, Sterling, Japanned, ₰ doz. $21.00
Model C, Sterling, ₰ doz. $21.50
Model D, Sterling, ₰ doz. $19.50

Tacks, Finishing Nails, &c.

New List, May 1, 1905.

American Carpet Tacks 90&37½&10%
American Cut Tacks 90&37½&10%
Swedes Cut Tacks 90&37½&10%
Swedes Upholsterers' 90&50&10%
Gimp Tacks 90&50&10%
Lace Tacks 90&50&10%
Trimmers' Tacks 90&50&10%
Looking Glass Tacks 65&5%
Bill Posters' and Railroad Tacks, 90&50&10%
Hungarian Nails 85%
Finishing Nails 70&10%
Trunk and Clout Nails 80&10%

NOTE.—The above prices are for Standard Weights. An extra 5% *is given on Medium Weights, and an extra* 10&5% *is given on light weights.*

Miscellaneous—

Double Pointed Tacks 90&5 *or* 6 *tens*

See also Nails, Wire.

Tanks, Oil—

	Each.
Emerald, R. M. Co. 30-gal.	$3.40
Emerald, R. M. Co. 60-gal.	$4.25
Queen City, R. M. Co. 30-gal.	$3.65
Queen City, R. M. Co. 60-gal.	$4.50

Tapes, Measuring—

American Asses' Skin 50@—%
Patent Leather 25@30&5%
Steel 33⅓ 1-3&5%
Chesterman's 25@25&5%
Eddy Asses' Skin 40&10@50%
Eddy Patent Leather 25@30&5%
Eddy Steel 40@40&10%
Keuffel & Esser Co.:
Favorite, Ass Skin 40&10@50%
Favorite, Duck and Leather 25&5@25&10%
Metallic and Steel, lower list 35@35&5%
Pocket 35@35&5%
Lufkin's:
Asses' Skin 40&10@50%
Metallic 30@30&5%
Patent Bend, Leather 25&5@25&10%
Pocket 40@40&5%
Steel 33⅓@35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger . . . *per 100 lbs.* $2.75@$3.00

Thermometers—

Tin Case 80&10@80&10&5%

Ties, Bale—Steel Wire—

Single Loop 80&2½%
Monitor, Cross Head, &c. 70%

Brick Ties—

Niagara Brick Ties 25&10%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tips, Safety Pole—

Covert's Saddlery Works 60&10%

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White 20@20&5%

Hay—

Myers' Hay Tools 50%
Stowell's Hay Carriers 50%
Stowell's Hay Forks 50%
Stowell's Fork Pulleys 50%

Miniature—

Smith & Hemenway Co.'s 25%

Saw—

Atkins' Cross Cut Saw Tools 40%
Simonds' Improved 33⅓%
Simonds' Crescent 25%

Ship—

L. & I. J. White 25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz. $1.15@$1.25; *gro* . . . . $11.50@12.00
Harper, Champion or Paragon, doz. $1.25@1.40; *gro.* $13.00@13.50

Game—

Imitation Oneida 75@75&5%
Newhouse 40@45&5%
Hawley & Norton 65%
Victor 70&10%
Oneida Community Jump 50%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes 8½@9¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, each $1.21; ₰ doz. $13.25
No. 3, Rat, ₰ doz. $6.50; case of 50 $5.75 doz.
No. 3½, Rat, ₰ doz. $5.25; case of 72 ₰ gro. $4.70 doz.
No. 4, Mouse, ₰ doz. $3.85; case of 150 $3.00 doz.
No. 5, Mouse, ₰ doz. $3.00; case of 150 $2.25 doz.

Trimmers, Spoke—

Wood's E 1 50%

Trowels—

Disston Brick and Pointing 30%
Disston Plastering 25%
Disston "Standard Brand" and Garden Trowels 35%
Kohler's Steel Garden Trowels, 5 in. ₰ gro. $4.80
Kohler's Steel Garden Trowels, 6 in. ₰ gro. $6.00
Never-Break Steel Garden Trowels.. ₰ gro. $6.00
Rose Brick and Plastering 25&5%
Woodrough & McParlin, Plastering 25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern 50&10%
Western Pattern 60&10%
Handy Trucks ₰ doz. $16.00
Grocery ₰ doz. $15.00
Daisy Stove Trucks, Improved Pattern ₰ doz. $18.50
McKinney Trucks each $10.00
Model Stove Trucks ₰ doz. $18.50

Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	$4.25	4.75	5.25

Galvanized Wash Tubs (R. M. Co.):

	No. 1	2	3	10	20	30
Per doz., net	$5.70	6.30	7.20	6.60	7.20	8.10

Twine, Miscellaneous—

Flax Twine:	BC.	B.
No. 9, ¼ and ½-lb. Balls	22@24¢	
No. 12, ¼ and ½-lb. Balls	18@20¢	
No. 18, ¼ and ½-lb. Balls	16@18¢	
No. 24, ¼ and ½-lb. Balls	16@18¢	
No. 36, ¼ and ½-lb. Balls	15@17¢	
Chalk Line, Cotton ½-lb. Balls	25@30¢	
Cotton Mops, 6, 9, 12 and 15 lb. to doz	10@18¢	
Cotton Wrapping, 5 Balls to lb., acording to quality	11½@20¢	
American 2-Ply Hemp, ¼ and ½-lb. Balls	13@14¢	
American 3-Ply Hemp, 1-lb. Balls	13@14¢	
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine)	9½¢	
India 3-Ply Hemp, 1-lb. Balls	9½¢	
India 3-Ply Hemp, 1½-lb. Balls	7@8¢	
2, 3, 4 and 5-Ply Jute, ½-lb. Balls	9@10¢	
Mason Line, Linen, ½-lb. Bls	16¢	
No. 26½ Mattress, ¼ and ½-lb. Balls	37¢	
Wool, 3 to 6 ply	B 6¢	A 6½¢

Vises—

Solid Box 60%

Parallel—

Athol Machine Co.:
Simpson's Adjustable 40%
Standard 40%
Amateur 25%
Columbian Hdw. Co. 40%
Emmert Universal:
Pattern Makers' No. 1, $15.00; No. 2, $12.50. 40%
Machinist and Tool Makers' No. 4A, $12.50; No. 5A, $7.00; No. 6A, $10.00; No. 10A, $22.50. 40%
Presto Quick Acting 25@25&5%
Tiger Machinists' 40%
Fisher & Norris Double Screw 15&10%
Hollands':
Machinists' 40@40&5%
Keystone 65&5@70%
Lewis Tool Co.:
Adjustable Jaw 30%
Monarch 50%
Solid Jaw 50%
Massey Vise Co.:
Clincher 40%
Perfect 20%
Lightning Grip 20%
Merrill's 20%
Millers Falls 60&10%
Parker's:
Victor 20@25%
Regulars 20@25%
Vulcan's 40@45%
Combination Pipe 55@60%
Prentiss 20@25%
Sargent's 40%
Snediker's X. L. 33⅓%
Stephens' 33⅓%
Williamson Mfg Co. Double Swivel 40&5%

Saw Filers—

Disston's D 3 Clamp and Guide, ₰ doz. $30 25%
Perfection Saw Clamps, ₰ doz. $4.50
Reading 60%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3 45&50%

Wood Workers—

Massey Vise Co.:
Lightning Grip 15%
Perfect 15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Bignall & Keeler Combination Pipe Vise 60&10%
Holland's Combination Pipe. 60@60&5%
Massey's Quick Action Pipe 40%
Parker's Combination Pipe:
87 Series 60%
187 Series 60&5%
No. 870 40%
Williamson Mfg. Co. Double Swivel Combination Pipe 40&5%

Wads—*Price per M.*

B. E., 11 up	60¢	Dis. 15%
B. E., 9 and 10	70¢	
B. E., 8	80¢	
B. E., 7	80¢	
P. E., 11 up	$1.00	
P. E., 9 and 10	1.25	
P. E., 8	1.50	
P. E., 7	1.50	

Ely's B. E., 11 and larger $1.70@1.75
Ely's P. E., 12 to 20 $3.00@3.25

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow Ware:
Enameled 55%
Ground 60%
Plain or Unground 65%
Country Hollow Ware, per 100 lbs. $2.75
White Enameled Ware:
Maslin Kettles 70%
Covered Wares
Tinned and Turned 40%
Enameled 50%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware 60%
Iron Clad Ware 70&10%
Lava, Enameled 40&10%
Never Break Enameled 50%

Tea Kettles—

Galvanized Tea Kettles:

Inch	6	7	8	9
Each	45¢	50¢	55¢	65¢

Steel Hollow Ware—

Avery Spiders and Griddles 65@65&5%
Avery Kettles 60%
Porcelained 50&50&10%
Never Break Spiders and Griddles 65&5%
Never Break Kettles 60%
Solid Steel Spiders and Griddles 65&5%
Solid Steel Kettles 60%

Warmers, Foot—

Pike Mfg. Co., Soapstone 40@40&10%

Washboards—

Solid Zinc: ₰ doz.
Crescent, family size, bent frame $3.25
Red Star, family size, stationary protector $3.25
Double Zinc Surface:
Saginaw Globe, family size, stationary protector $2.90
Cable Cross, family size, stationary protector $3.15
Single Zinc Surface:
Naiad, family size, open back, perforated $2.65
Saginaw Globe, protector, family size, ventilated back $2.50
Brass Surface:
Brass King, Single Surface, open back $3.25
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.25
Glass Surface:
Glass King, Single Surface, open back $3.25
Enamel Surface:
Enamel King, Single Surface, ventilated back $3.25

Washers—Leather, Axle—

Solid 80&10@80&10&10%
Patent 90@90&5%
Coil: ¼ 10¢ — ⅜ 11¢ — ½ 12¢ — ¾ *Inch* 13¢ *per box*

Iron or Steel—

Size bolt . . . . 5-16 ⅜ ½ ⅝ ¾
Washers . . . $5.70 4.80 3.50 3.30 3.10

The above prices are based on 5.70¢ *off list.*

In lots less than one keg add ½¢ *per lb.; 5-lb. boxes add* ½¢ *to list.*

Cast Washers—

Over ½ inch, barrel lots . . . . . *per lb.* 1¾@2¢

Weather Strip—

Flexible Felt—

Lined, per 100 ft., $2; $3; $4 40&10%
Moore's Unlined, per 100 ft., $2; $3; $4 50&10%

Wedges—

Oil Finish lb. 2.70@2.80¢

Weights—Hitching—

Covert Mfg. Co. 40%
Covert's Saddlery Works 60&10%

Sash—

Per ton, f.o.b. factory:
Eastern District . . . $27.50@$28.00
Southern Territory $20.00@$23.00
Western and Central Districts $23.00@$25.00

Wheels, Well—

8-in., $1.55; 10-in., $2.00; 12-in., $2.50; 14-in., $4.00.

Wire and Wire Goods—

Bright and Annealed:
6 to 9 80%
10 to 18 80&2½%
19 to 26 80&7½%
27 to 36 80&2½%
Galvanized:
6 to 9 75&5%
10 to 14 75&7½%
15 to 16 72½&10&2½%
19 to 26 75%
27 to 36 72½%
Coppered:
6 to 9 75&5%
10 to 14 75&7½%
15 to 18 72½&10&2½%
19 to 26 75&10&5%
27 to 36 75%
Tinned:
6 to 14 75&10&2½%
15 to 18 75&7½%
Annealed, Steel and Tinned, on Spools . . 70&10&10@70&10&10&10%
Brass and Copper on Spools . . . 60&5@60&10&5%
Brass, list Feb. 26, '96 15%
Copper, list Feb. 26, '96 25%
Cast Steel Wire 50%
Wire Clothes Line, see Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

List June 24, '03 . . . 90&25@90&30%
Brass Cup Hooks and Brass Screw Hooks 85&10%

Wire Cloth and Netting—

Galvanized Wire Netting . . . . . 80&5@80&10%
Painted Screen Cloth, 100 ft., $1.00@1.10
Standard Galv. Hardware Grade:
Nos. 2, 2½ & 3 Mesh, sq. ft. 3 ¢
Nos. 4 and 5 Mesh, sq. ft. 3¼¢
No. 6 Mesh, sq. ft. 3½¢
No. 8 Mesh, sq. ft. 4 ¢

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural 75&10&5@80%
Alligator or Crocodile 70&10@75%
Baxter Pattern S Wrenches . . . 70&5@70&10%
Drop Forged S 45@45&5%
Acme 60&10%
Alligator Pattern 70%
Bull Dog 70%
Bemis & Call's:
Adjustable S 40%
Adjustable S Pipe 40%
Bemis Pipe 60%
Briggs Pattern 40%
Combination Black 40&5%
Combination Bright 40%
Merrick Pattern 50%
Boardman's 40%
Coes' Genuine Knife Hdl. 40&10&5&5%
Coes' Genuine Steel Hdl. 40&10&5&5%
Coes' Genuine Key Model 40&10&5&5%
Coes', Genuine Hammer Handle . . . . 40&10&5&5%
Coes' "Mechanics'" 40&10&10&5&5%
Donohue's Engineer 40&10%
Eagle 50&10%
Elgin Wrenches, ₰ doz. $6.25
Elgin Rethreading Attachment, one die, ₰ doz. $6.25
Elgin Extra Dies, ₰ doz. $3.00
Elgin Extra Jaws, ₰ doz. $1.75
Elgin Monkey Wrench Pipe Jaws, ₰ doz. $2.10
Gem Pocket 50%
Hercules 70%
W. & B. Machinist:
Case lots 50&5%
Less than case lots 50%
Solid Handles, P., S. & W. 50&10@60
Stillson 65%
Vulcan Chain 50%

Fruit Jar—

Triumph Fruit Jar Wrench, 5 gross lots, ₰ gross, $7.50; ₰ doz. $0.80

Wringers—

Tuttle Roller Press Mop Pail Wringer, each, $8.00; ₰ doz. $48.00

Wrought Goods—

Staples, Hooks, &c., list March 17, '92 90@90&10%

Yokes, Neck—

Covert Saddlery Works, Trimmed 70%
Covert Saddlery Works, Neck Yoke Centers 70%

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers' & Freighters' list net

Zinc—

Sheet . . . . . *per 100 lbs., $8.00@8.25*

For the Table of "Current Metal Prices" see the First Issue of Every Month.